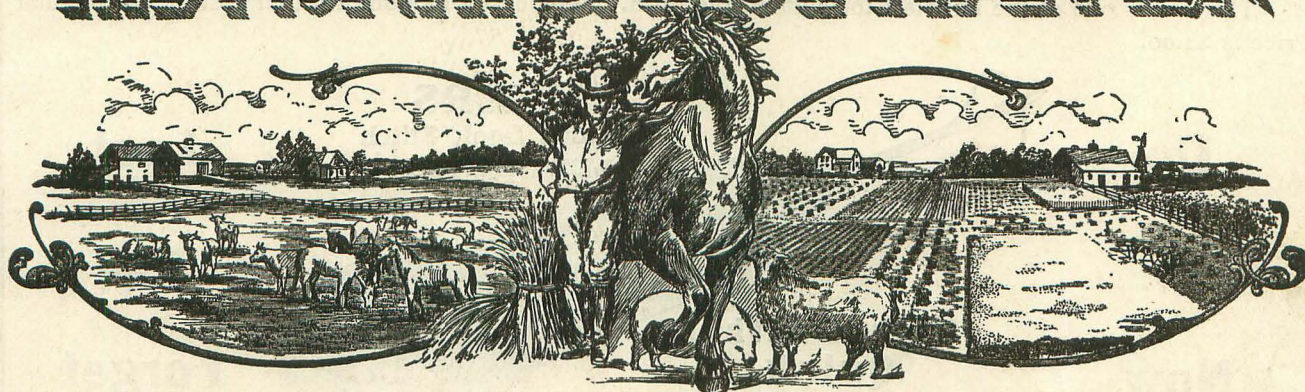


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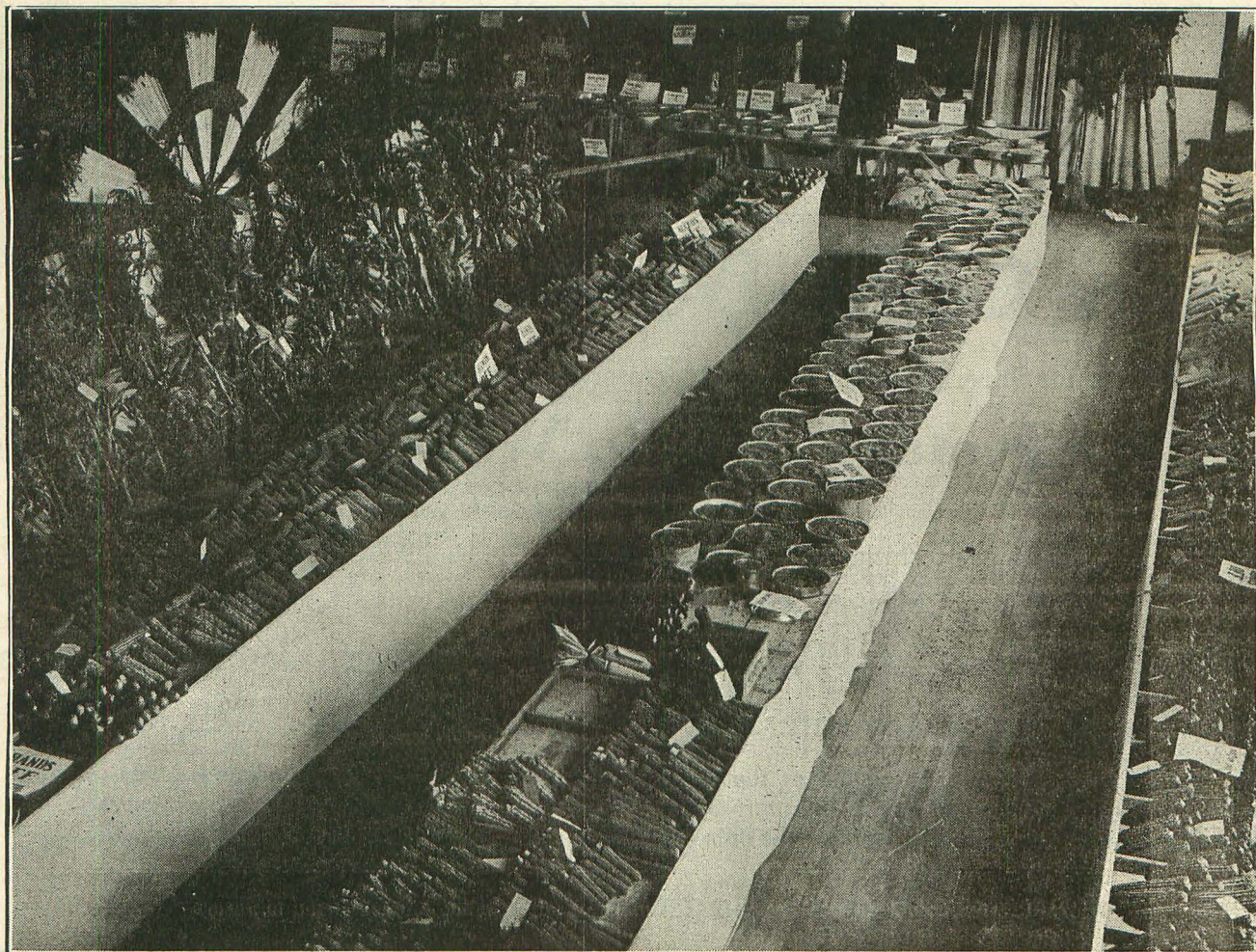


"THE NORTH DAKOTA FARMER FOR NORTH DAKOTA FARMERS"

Vol. 13 · No. 4

Lisbon, North Dakota, October 15, 1911

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THE NORTH DAKOTA FARMER

Vol. 13, No. 4

LISBON N. D., OCTOBER 15, 1911

50 Cents a Year

Systematic Farming

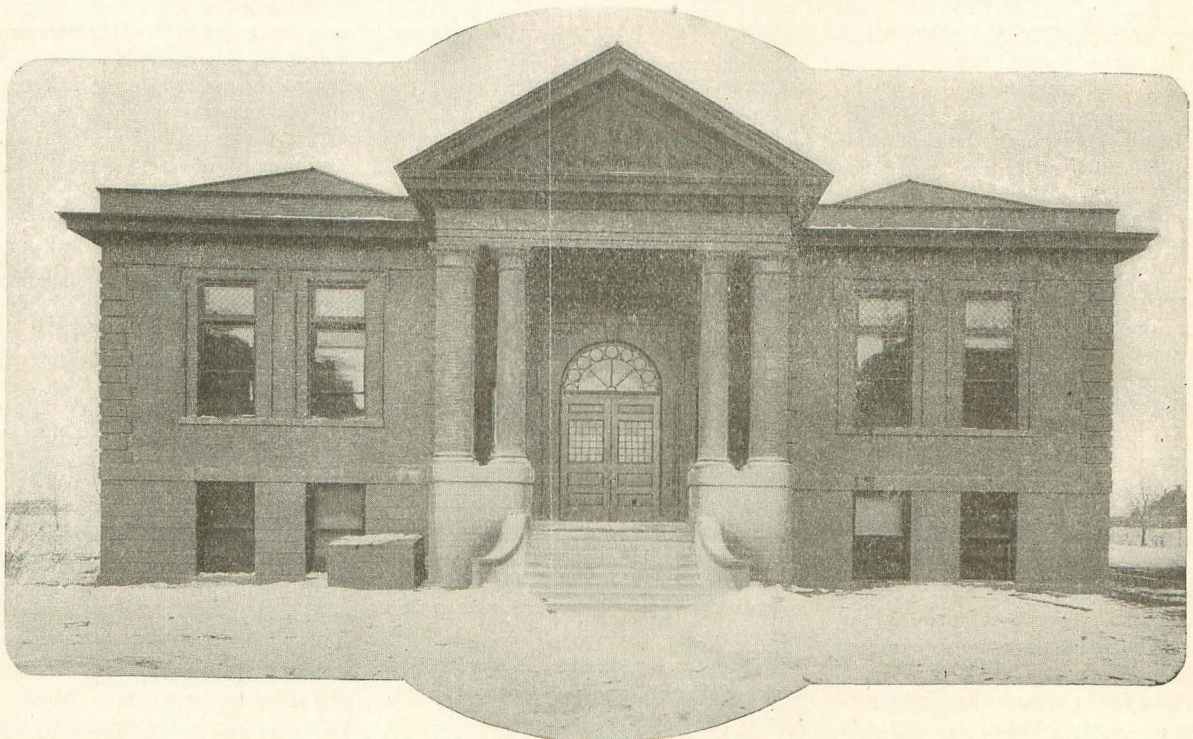
By J. H. Worst, Pres. N. Dak. Agri. College

The systematic farmer is usually a successful farmer. The man that farms without system—just farms hap-hazard—seldom makes a glowing success. The all-wheat farmer has no system in the accepted sense, and will ultimately fail. He should fail. Not that anyone should

upon the soil for sustenance, as the man that originally filed on it or that is now farming it.

The systematic farmer works out a system by which he may so diversify his crops as to employ his time somewhat evenly thruout the year; that he may

spring and summer months is the determining factor that governs the size and certainty of the harvest. One farmer plows four inches deep, when he gets ready, and uses the drag just enough to smooth the surface. He sows the remnant of wheat that is left over after selling what can be spared—and depends upon Providence to water his fields as the crops may need it. His neighbor plows eight inches deep, as early as possible, following the plow with subsurface packer and the packer with the drag—same day. If it rains, the water all goes into the soil because he has prepared a place for its reception; then he drags the field again to hold the water in the soil. He selects only plump, perfect seed for sowing,



Carnegie Library, North Dakota Agricultural College.

predict or desire another's misfortune, but the soil is abused by the one-crop farmer and he should fail in order to rid the country of the abuse of its greatest natural resource. A man has no more right to abuse the soil than he has to abuse his team or his family. Generations yet unborn will depend as much

maintain—even increase the fertility of his land; that he may destroy weeds and otherwise conserve moisture and, by thus using his mental faculties as well as his hands, prevent the many evils that befall the hap-hazard farmer.

In the long run, sufficient moisture to supply the growing crop thruout the

having previously thoroly cleaned and graded it. During the early part of the growing season, he uses the drag or weeder as often as the dashing rains form a crust over the ground, and keeps weeding or dragging the fields until the grain effectually shades the soil.

All this extra weeding and dragging

requires work, plenty of it, but note the systematic farmer's purpose. The extra work he gives his ground is to insure sufficient moisture for the growing crop. He does not depend upon Providence to give him plenty of moisture to let go to waste, and in addition, plenty more when his crop must have it or perish.

Of the two farmers above described, will it require a hard guess as to the more successful, taking one year with another? The bug-a-boo of "too much work" is the sheerest fallacy. The extra draggings and extra discing will not cost to exceed one dollar an acre. Farming "any old way" costs, counting interest on investment, seed, and labor, approximately seven dollars an acre. By applying one additional dollar's worth of labor to each acre, the chances are as good for double the profit as to get any profit without the extra dollar's worth of labor. Thus half the profits may be credited to about one-seventh or one-eighth the total cost of production.

"But," says one, "so much work will cause the land to blow." Work the land when it is quite damp and it is not so likely to blow. But why permit it to be in condition to blow? The systematic farmer's land is rarely in condition to blow. He does not grow small grain on his land year after year. No good farmer does. The systematic farmer keeps considerable livestock. He grows corn and grass as well as grain, and by maintaining a systematic rotation, keeps the ground so full of grass roots and manure, or humus, that it has but little chance to blow.

Another thing, what with livestock, dairying, small grain, and poultry, he has many sources of income, several of them very dependable, regardless of weather conditions. The system he employs not only insures a profitable income every year, but improves the fertility of his farm and keeps it clear of weeds.

Of course, it will be impossible to farm as many acres, but what of that? Isn't it better, with a fair degree of assurance, to clear five dollars an acre on 160 acres than to take a slim chance at clearing two dollars an acre on a half section?

Let us not forget that farming, at best, is a business that involves many risks. This is particularly true in a state where the moisture that falls during the growing season is oftentimes limited. But I know of no section of the great Northwest where the soil is more responsive to proper tillage and where the curse (?) of drought can be more readily changed into the mercy of an over-ruling Providence. And I will venture the prophecy that, within ten years, our enterprising real estate men will be shouting the fact as lustily that the state is blest with just enough

moisture, that is, when properly conserved, there is always abundance for the crop with never any to wash away and waste the fertility, as now some of them are trying to delude the public into the belief that this is a humid country. The millions of dollars already sacrificed to this false god should suffice, especially when the fact remains that with proper tillage and systematic management, such a thing as loss of crop from drought would be a very rare circumstance.

We should be grateful, rather than otherwise that ours is a region of abundant moisture (when properly conserved) with never enough rainfall to impoverish the soil by run-off or leeching. This fact alone accounts for the wonderful fertility of our North Dakota prairies. When our farmers, therefore, farm agreeable to local conditions instead of trying to adopt methods practiced in humid countries, such a thing as failure of crops on account of drought will not occur once in a decade.

Handling the Potato Crop

By J. H. Shepperd and O. O. Churchill
in Bulletin No. 90.

The potatoes should not be harvested mature. It is well to leave them in the soil as long as safety permits without danger of freezing. No matter how early the vines mature, the digging should be delayed until about the first of September.

When the tubers are affected with rot it will be most noticeable late in the season, and it is useless to gather those affected. A saving is made in harvesting and it saves labor later. There is no way of stopping this disease when the potatoes are badly infected as it develops inside the tuber and cannot be reached.

A potato harvester should be used. The four-horse digger is the best type. With this machine the potatoes can be dug as fast as a team can walk.

The tubers should be allowed to lie on the surface of the ground two or three hours or until the surface becomes thoroughly dry. They are then ready to haul to market or to the storage place. When stored it is best to gather the tubers in a large wagon box from which they are shoveled with a wire scoop into a slide made of narrow slats over which they run into the cellar. If the potatoes are allowed to dry before picking, most of the dirt will be removed in this way.

The potatoes should be stored in a dark, cool, well ventilated cellar or pit. The temperature should be kept from 35-36 degrees Fahrenheit. A lower temperature 33-35 would be better if it could be kept constant and without danger of freezing.

There are physiological changes which take place in stored potatoes. There is a respiratory combustion and the formation of sugar. Freezing is not believed necessary to produce this change.

For seed purposes the potatoes should

be kept at a uniform temperature of about 34-35 degrees Fahrenheit.

There is a loss in stored potatoes, due not only to the removal of dirt but also to respiration which amounts to 10-15 per cent of the total weight in about six months. This loss which cannot be avoided should be considered when holding potatoes over for market.

The potato crop is a semi-staple one and hence can not be held for any great length of time. In North Dakota it is generally a question of fall or spring marketing as it is usually not practicable to market potatoes during the winter. The prevailing prices must be accepted or some commercial use made of the product.

As a general thing, it is best to haul the crop direct to market, unless some particular trade is to be supplied. It is a common practice to contract the crop, in which case the delivery must be made at the time contracted for. Nothing very definite can be said regarding the disposal of the crop. It can only be handled when all conditions are considered.

Large growers may develop a market which they supply every year. Small producers may combine and ship in the same way. This would necessitate some kind of an organization. A storage house should be built near the shipping point if the potatoes are to be marketed in the spring. In any case a potato growers' association would be of benefit. Machinery too expensive for one who grew but 10-12 acres of potatoes should be owned by the organization. One power sprayer is sufficient for 10-20 such farms.

If there is a limited local market it will be necessary to ship the product. Potatoes may be profitably shipped long distances to supply a good market. If the product is sold thru a commission

house, be sure to deal with a reliable one. Such houses may be found in any large center.

What is quality? In some countries a heavy, soggy cooking potato is thought to possess the highest quality. In the United States most people prefer a potato which will become mealy when cooked. The potato should not, however, be so starchy that it will break the skin or fall to pieces before becoming cooked. For slicing and frying a soggy potato is desirable. From these statements it will be seen that quality in potatoes is dependent upon one's taste.

Mealiness is dependent upon the variety and the soil, climate and maturity. A dry, sandy soil produces the mealier potatoes. An immature potato seldom cooks well and from our standard is of very poor quality. If the tubers are so green that the skin is easily bruised they will be inferior in keeping quality. Maturity is indicated by a corky surface and the presence of lenticles. When the vines are badly injured by insects or diseases the tubers do not mature and such a crop will have a poor quality.

There are many characters which indicate quality, percentage of dry matter, size, specific gravity, appearance, flavor, surface, smoothness, color of skin and flesh, depth of eyes and texture. These characters have either been described or need no description.

POCKET GOPHERS

By Prof. S. Arthur Johnson, Colorado Agricultural College

Ten million dollars is a neat sum to pay each year for the ravages of one animal, yet this is the figure given by the United States Department of Agriculture as the damage done by the pocket gophers.

Injuries. Gophers are troublesome in a number of ways. In alfalfa fields the mounds interfere with the mowing. The cycle has to be raised continually to prevent injury to the teeth, and a portion of the cutting is lost. The roots, which furnish succulent and agreeable food, are cut off and eaten. The plants so attacked are injured or killed. Gophers do not appear to show much preference in the choice of their food, which is chiefly roots and underground tubers and bulbs. In the field they steal potatoes from the hill and eat off the carrots, parsnips and sugar beets. The most costly depredations of these pests are in orchards and nurseries. They follow the roots of the trees to the crowns, cutting the roots into pieces, which are either eaten or stored. Often great damage is done during the dormant season, because the work is

not discovered until the trees grow again.

Description. This article has to do with the pocket gopher, which should not be confused with the striped, or gray ground squirrels, which also live in holes in the ground, but feed chiefly on substances found above the surface.

Life Habits. Practically the entire life of these animals is spent under the ground. It is seldom that they leave the mouths of the tunnels farther than is necessary to throw out the dirt. The burrows are long tunnels which wind about in the ground in whichever direction the sweet will of the animal dictates. The main tunnel is about eight to ten inches below the surface. On either side at frequent intervals are short laterals leading up to the surface where the dirt accumulated in digging is thrown out in small mounds. When a lateral is no longer needed for this purpose, it is so tightly packed with earth that it is almost impossible to follow it while digging. At intervals in the tunnel will be found chambers which are used to store food for winter. In favorable circumstances far more material is hidden away than the animal can use. In some chambers is found dried grass, where perhaps the animal rests, or where the young may be nestled.

Gophers are not prolific breeders. There appears to be but one litter of young, containing from two to six, which is brought forth in the spring of each year. These are nearly grown in the fall and leave the parent home at that time to construct winter quarters for themselves. The most active periods of work are in the spring and fall, and these are the best times to apply remedial measures.

Poisoning Methods. Poisoning is the best method to use against these pests when they are encountered in large numbers. The following formula has been tried with success and is recommended by the United States Department of Agriculture:

- 4 oz. powdered strychnia sulfate
- 4 oz. green coffee
- 6 oz. alcohol
- 4 eggs (whites only)
- $\frac{1}{2}$ gal. thick sugar syrup

Mix the coffee and whites of eggs and let the mixture stand over night. Add a quart of cold water to the coffee eggs mixture and stir thoroughly. Strain into the mixing vessel thru a sieve fine enough to hold the coffee, which is rejected. Add the sugar syrup and stir thoroly. Dissolve the strychnia in a little less than a quart of boiling water. Pour the alcohol into this solution and stir. Then add the mixture of strychnia, alcohol, and water

to the contents of the mixing vessel and stir thoroly.

This quantity of poison is sufficient for two bushels of wheat and will be more than is needed for any ordinary conditions. These ingredients may be used in smaller quantities if the same proportions are preserved.

After the poison is mixed, the grain should be put in a perfectly tight vessel and the poison poured over it. Stir very thoroly till all the grain is wet, and then slowly stir in sufficient corn meal to take up the extra moisture.

Another poison is given by the Biological Survey, which is as follows:

- 1 oz. strychnia sulfate
- 1 pt. thick sugar syrup
- $\frac{1}{2}$ bu. shell corn

Soak the grain and let it stand over night. Prepare the poison by dissolving the strychnia sulfate in one pint of hot water. Add the sugar syrup. Pour the water off the grain and then let it soak in the poison for several hours. Take up the excess of moisture with corn meal.

A third and more simple method is often used where but a small quantity of poison is needed. Potatoes, carrots or other vegetables are cut into pieces about half an inch in diameter. These are slit with a knife and a small quantity of strychnia about the size of half a grain of wheat is inserted into each piece. Raisins are sometimes substituted for vegetable bait.

Any of the above poisons may be used by placing them in the main runways of the animals. If the baits are put in the laterals, they are apt to be pushed out by the animals with the dirt they are bringing to the surface. It requires some experience to find the main tunnels, but attention to the habits of the animals as described above will help. It is best to confine the work entirely to the end of the tunnel where the animal is digging, which is indicated by the fresh mounds of earth that have been brought up. The main tunnel is usually found about midway between the last two mounds. A sharp stick made from a broom or spade handle is needed. If much work is to be done, it will pay to have the stick shod with a sharp point by a blacksmith, and a lateral piece of iron, on which the foot may rest, put about fifteen inches from the point, so that the foot may be used in pushing the instrument into the ground. With this tool the ground is prodded until the main tunnel is found. A few kernels of grain or piece of poisoned bait is then dropped into the runway and a clod thrown on top or the hole left open. The poison should not be covered with

earth. Failure of the animal to dig any more indicates its death.

Trapping. Trapping is a second method very commonly employed. A number of manufacturers make traps which are specially designed for this work. These traps are to be set in freshly opened laterals and are so constructed that the animals are caught as they push the loads of dirt out in front of them.

Gophers may also be caught in the common steel traps such as are used in trapping muskrats. These traps should be set in the main runways. Dig down to the runway and set the trap level with the bottom. It is not necessary to cover the trap for the animals do not seem to suspect any trouble of this kind. It has been found better to put a board or some other covering over the opening to exclude the light, tho this is not altogether necessary. The traps should be frequently scalded to take away the animal odor. Records from the Kansas experiment station show that from half to two-thirds of the traps set in this way will be covered with dirt, so one should not be discouraged at the results of the first attempts. Plenty of traps should be used and the work steadily carried on thruout the day.

Gases. Gases, such as carbon bisulfide, have been repeatedly tried for these pests, but success with them has only been indifferent. The tunnels are so long and rambling that the gases seem to soak away into the ground before the animals are killed, or perhaps the gophers stop the burrows at the first sign of the coming gas.

The question is often raised as to why the gophers are so much more numerous than formerly. There are probably a number of reasons for this. The opening of lands to agriculture furnishes ideal conditions for the gophers to prosper, and mankind has persistently killed the natural enemies of the animal. In the field, gophers are preyed upon by owls, the great blue heron, snakes, weasels, and the little striped skunk. The owls are especially useful, for they sometimes live almost entirely on this kind of diet. The owls are a valuable aid in any agricultural community because of the large numbers of mice, gophers, and other small animals they destroy. One should never be destroyed unless it has acquired the habit of catching poultry.

The gopher is a pest that will seemingly always be with us, but it can be controlled and neighboring farmers should co-operate to keep it down to comparatively harmless numbers

GOOD ROADS AND AUTOMOBILES

That the question of good roads is one which affects the man in the city as well as the man in the country, is now generally recognized. Furthermore it follows as a natural sequence that the cost of all transportation is borne ultimately by the consumer.

State Geologist W. O. Hotchkiss of Wisconsin tells how one farmer of that state became a believer in good roads. This man had a thousand bushels of potatoes in the cellar which he was holding for a good price. An offer of 92 cents came in March, but, as he expressed it, the roads were so bad tha the only way he could get to town was by telephone. Of course the road finally dried out, and then h secured 30 cents a bushel for his potatoes. Hence, rightly, he assumed that bad roads had cost him something over \$600, and he likewise figured that if all the main roads in the county had been improved, his share would not have been as much as the loss on his crop of potatoes. Mr. Hotchkiss sums up the situation very concisely in this sentence: "Good roads benefit us at every turn, and bad roads are an extravagance that no people can afford."

There is a goodly amount of discussion just now in Washington, D. C., regarding the memorial to be erected to Abraham Lincoln. Many dissent from the proposition of a \$2,000,000 arch, and one well known Washington business man, Thos. P. Hickman, recently made this statement:

"This country is destined to become a nation of automobilists. The time is coming when a community to be prosperous must be interested in good roads. By building a pike between Washington and Gettysburg, thousands of persons would make use of it every year. Not only would the automobilists be benefited, but also the inhabitants of every county thru which the highway would pass."

From all over the country come-doubted indications of a belief that the Federal government should be involved in the consruction and maintenance of interstate highways. Congressman Borland of Missouri very concisely stated the exact situation in these words:

"I insist that if the policy of internal improvements, which has become a settled policy of the Government, is to continue, then the highways of the country shall share in that system as constituting a vital part thereof and as such be entitled to a square deal. As public highways, they constitute a vital place in transportation, and, belonging to the public, they should be constructed and maintained by the public."

The National Good Roads Board,

which is interesting itself in general highway improvement thruout the country, is co-operating with all organizations interested in the subject. President Robert P. Hooper of the American Automobile Association meets the assertion that the board is largely composed of automobilists, by this pertinent comment.

"As the most insistent users of the road, it is our duty to aid in highway improvement to the fullest extent of our ability, and we look upon the work as a simple duty which is expected of us. It is plainly apparent that we consider the motor-driven vehicle as essential to the man in the country as it is to the urban resident; in fact, we look forward to an early period when every farm will have an automobile just as it must have farm machinery and other equipment to carry on its work. To journey quickly from farm to town and home is desirable to the man in the country for time is something in which he, too, can economize. It certainly is also essential that the road shall be properly constructed and efficiently maintained. We ask little or none of the credit for securing improved highways, but our 39 state bodies and 300 clubs and thousands of members do not desire to be considered backward in meeting the duty which, by common consent, has devolved upon them."

CONCRETE MATERIALS FOR FARM IMPROVEMENT

The early settlers, colonists, and pioneers encountered a trackless forest extending from the Atlantic to the prairies, the removal of which was necessary before they could create farming land. As the country began to be settled demand upon the forests was made for building material. A hundred years ago almost all agricultural structures, and buildings of all kinds in farming communities, were constructed from lumber procured from nearby forests. Even a few years ago the farmer used nothing but lumber for farm buildings. The timber was cut from his own land and sawed at nearby mills, so that his own trees were converted into his troughs, dairy-houses, walks, fences, and even his house and barn; hence the high price of lumber consequent upon the rapid decrease in the country's timber supply, was felt last by the farmer—tho now the demand for a new building material is nowhere more keenly felt than on the farm.

Such a material has been found in concrete; which in some instances has proved superior to lumber, brick, or building stone, and is being used for all kinds of farm structures from silos to

sidewalks, and stables to dwellings. This material too, like his lumber, can generally be largely produced from his own or nearby land,—as nothing but the cement and metal bars for reinforcement need be purchased from afar, and much of the work can be done by the farmer and with ordinary farm labor under the direction of a skilled concrete worker.

Frequently concrete users have made costly mistakes by not informing themselves properly, before starting their work, concerning the correct methods of making good concrete. As a guide in the selection of the proper materials, especially the sand and gravel, which form six-sevenths of the solids used in

concrete, the U. S. Department of Agriculture issued Farmers' Bulletin No. 461, containing suggestions which should be observed.

Concrete is manufactured stone formed by mixing cement, sand, and stone or gravel (i. e. pebbles) together with water. The cement is but a small part of the mixture, and is the product of skilled workmen under the supervision of the manufacturer who must compete with all other makers of like material; but the sand and gravel constituting one-third or one-half of the final product must be selected and prepared by the farmer, and this is where most failures originate. Various amounts of each are used, according to

the use which the finished product is to be put. The mixture in which all the spaces or voids between the stones or gravel are filled with sand and all the spaces between the grains of sand are filled with cement is the ideal mixture. The ideal is seldom attained, but the bulletin gives detailed instructions and instructive illustrations, which should go far towards enabling the farmer to closely approach it.

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One of your home dealers sells stoves which outwear *three* ordinary stoves. It is really much less expensive to buy one *good* stove than to have to buy *three* of the commonplace kind.

Cheap Stoves an Extravagance

Curious as it seems, the stove that you pay the *least* money for is very apt to be the most *expensive*. Pretty pictures, alluring descriptions and loud claims can't make up for poor materials and careless workmanship. Remember that!



Disadvantages of Buying Stoves Away from Home

A stove you send away for never comes set up. You must go to the depot for it. You must load it at the depot, unload it at home, uncrate it, put it together, fuss with a lot of stovepipe, set it up, black it and assume the whole responsibility of the job. Compare this with ordering a stove from your dealer. Don't buy stoves sight unseen. You pay *excess* freight, too. Your order may be delayed. You get no better terms than your home dealer will give you.

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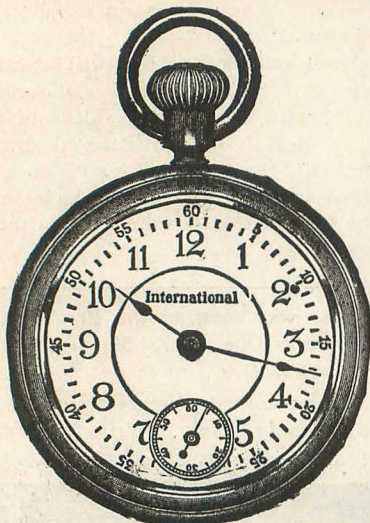
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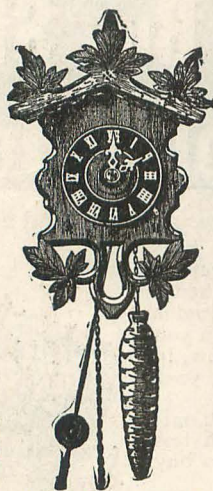
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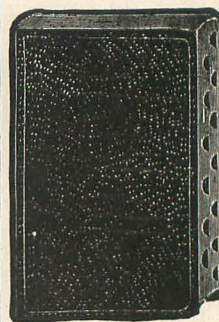


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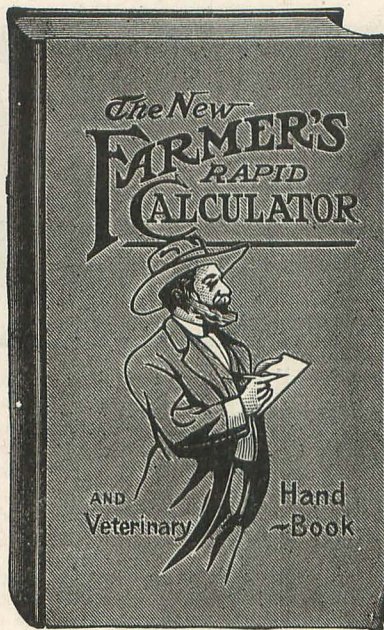
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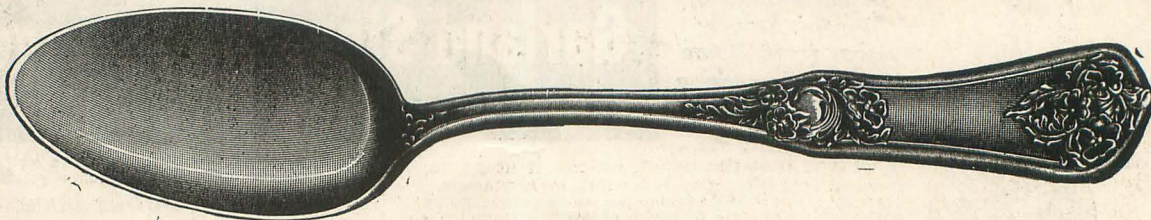
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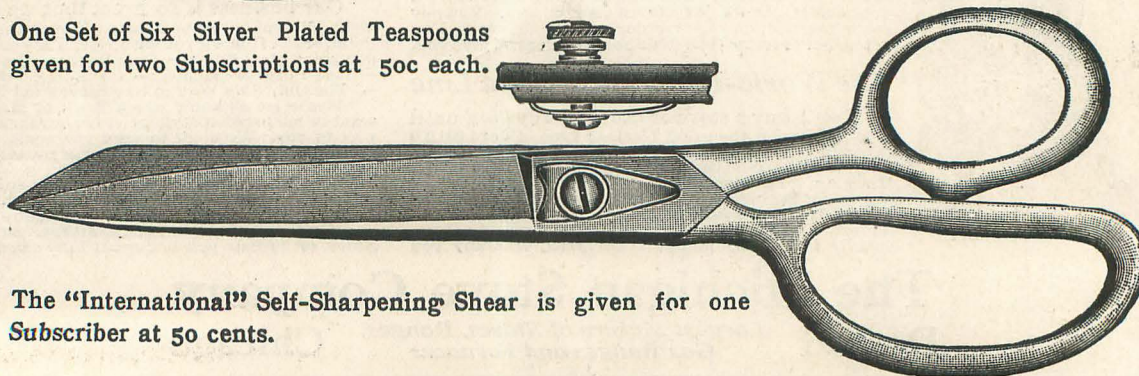
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The "International" Self-Sharpening Shear is given for one Subscriber at 50 cents.

THE NEED OF FARMER'S MEETINGS

That there is a need of farmers' meetings goes almost without saying. Much of the progress that is made in manufacturing, railroading, in the professions, in banking and in merchandising has come from each one's learning from his fellow worker. These all have their meetings where they come together and learn from each other. Then again, the location of their business is such that they come together a good deal anyway.

A Mossback Banker. But imagine a fellow starting in banking without much experience in banking and then never attending a bankers' meeting or going where he could learn from other bankers. If such a thing could happen there would result a queer bank. Or sup-

pose a merchant started out in his business and never tried to learn from his fellow merchants, what kind of a store would he have? Apply that to the farm. Many farmers started in without much experience and if they have not learned from their fellow farmers their methods are likely not the most up-to-date.

Farming Requires Much Skill and Knowledge. In farming there are so many things that require knowledge and skill that farmers need to get together oftener than anyone else for sake of learning from each other and at times to have some outside speaker address them.

The Social Need. Then there is the further reason for meeting. Farmers live more or less isolated, so are in need

of the social feature of a meeting. Their wives and children need it. This is an age in which we need to learn to work together to profit by each other's experience. That is what has made the railroads powerful and prosperous, the manufacturing concerns large and profitable, the banking business a remunerative one.

Getting at the Best Material. There are many operations on the farm that are carried on in an expensive way. The best way of learning how to reduce the cost of them is for the farmers to get together and talk over the different ways that each has found to be the best. From this kind of an **experience meeting** much good will come.

How to Start a Meeting. Talk it over with some of the neighbors, set a time

**THE TABULAR SUMMARY
OF GENERAL AGRICULTURAL DATA CENSUS OF 1910**

	1910	1900	Increase, 1900-1910.		Percentage Distribution	
			Number or amount	Per cent	1910	1900
All farms†.....	6,340,357	5,737,372	602,985	10.5	.....	.....
Total acreage.....	873,729,000	838,592,000	35,137,000	4.2	.....	.....
Improved acreage.....	477,448,000	414,499,000	62,949,000	15.2	.....	.....
Per cent of improved acreage of total acreage.....	55	49	.....	.....	.....	.....
Average acres per farm.....	138	146	—8	—5.4	.....	.....
Value of land and buildings.....	\$34,681,507,000	\$16,614,648,000	\$18,066,859,000	108.7	.....	.....
Value of land.....	\$28,386,770,000	\$13,058,008,000	\$15,328,762,000	147.4	.....	.....
Value of buildings.....	\$6,294,737,000	\$3,556,640,000	\$2,738,097,000	77.0	.....	.....
Value of implements and machinery.....	\$1,262,022,000	\$ 749,776,000	\$512,246,000	68.3	.....	.....
Average value per acre of land and buildings.....	\$39.09	\$19.81	\$19.88	100.4	.....	.....
Average value per acre of land alone.....	\$32.49	\$15.57	\$16.92	108.7	.....	.....
Expenditures for—.....						
Labor.....	\$645,612,000	\$357,392,000	\$288,220,000	80.6	.....	.....
Fertilizer.....	\$114,277,000	\$53,432,000	\$60,845,000	113.9	.....	.....
All farms by color of farmer:.....						
White farmers.....	5,422,892	4,969,608	453,284	9.1	85.5	86.6
Negro and other not white farmers....	917,465	767,764	149,701	19.5	14.5	13.4
Total.....	6,340,357	5,737,372	602,985	10.5	100.0	100.0
All farms by tenure:.....						
All owners.....	3,933,705	3,653,323	280,382	7.7	62.0	63.7
Owners, fees.....	2,622,341	.....	.....	.....	66.7	.....
Owners, mortgaged.....	1,311,364	.....	.....	.....	33.3	.....
Tenants.....	2,349,254	2,024,964	324,290	16.0	37.1	35.3
Managers.....	57,398	59,085	—1,687	—2.9	0.9	1.0
Distribution by acreage groups:						
19 acres and under.....	829,303	673,870	155,433	23.1	13.1	11.7
20 to 49 acres.....	1,410,992	1,257,496	153,496	12.2	22.3	21.9
50 to 99 acres.....	1,435,743	1,366,038	69,705	5.1	22.6	23.8
100 to 174 acres.....	1,513,235	1,422,262	90,973	6.4	23.9	24.8
175 to 499 acres.....	976,597	868,020	108,577	12.5	15.4	15.1
500 to 999 acres.....	124,883	102,526	22,357	21.8	2.0	1.8
1,000 acres and over.....	49,604	47,160	2,444	5.2	0.8	0.8

*Minus sign (—) denotes decrease.

†Excludes data for Alaska, Hawaii, and Porto Rico.

and place to meet. Elect a president, vice-president, secretary and librarian. A program and also a social committee should be appointed. Among the duties of the social committee will be the providing for lunch, so it might be well to appoint ladies.

It will be surprising how much can be learned from such meetings.

FLAX CANKER

H. L. Bolley, Agricultural College
North Dakota

Many people complain that their flax has been breaking over as if whipped by the wind or gnawed by insects. The trouble is a disease which attacks the seeds internally. Any cankered plant which produces mature seeds will produce seed which the next season will produce cankered plants. A small canker is formed on the young plant just at or above the seed leaves immediately following the time when the young seed leaves yellow and drop off. This portion of the stem never enlarges. It enlarges above and below this point and the plant continues to live and grow until its top causes it to break over. Wherever one of these plants falls the ground for a number of feet about it the next year will produce almost entirely cankered plants, but, this time, the plants will not break over. They will be yellow and very sickly, appearing weak and all of them will mature more or less seed but that seed will produce, next year, real canker plants; that is, plants which break over.

The dryer land regions of the Missouri river slopes are not very subject to wilt. It does not seem to be able to get hold of the ground to remain there, but canker spreads rapidly.

This is a real argument for crop rotation so far as flax is concerned. No man can afford to sow flax twice in succession on his land if he wants to continue to produce good crops. There should go between each flax crop three or four other crops, especially one or two cultivated crops, the last crop just preceding the flax on such land where the disease has been started should be a cultivated crop. Corn furnishes the best results. As this disease is very destructive under dry soil conditions the farmers must practice deep plowing on their clay subsoils so as to allow the water to penetrate, that the plant may have an abundance of water thruout the year. Wherever sufficient water is maintained in the soil to give the flax plant a normal growth canker is not able to do much damage. This condition is reversed when we consider wilt.

A peculiarity of flax canker is that the chief source of transmission is internal

infection of the young plant in the seed. Such plants, when they first come up, either have yellow seed leaves or ones with canker on them or brown spots, and such leaves fall off early leaving a slight scar which finally develops into a real scab or canker, which looks like a place eaten by ants or crickets. All cankered seed is more or less shriveled and light weight. Farmers should select seed with this point in view. Plump and bright-colored seed should be selected, for the reason that such are not apt to have been grown upon sick plants. Grade this seed thoroly so as to eliminate the lightest portion of it. Treat the seed with formaldehyde so as to kill any spores of the disease which may be on the outside of the healthy seeds, dusted there by the spores falling from the stems of the diseased plants at thrashing time. Farmers should practice crop rotation to give this parasitic disease of flax a chance to die out of the land. Use cultivated crops to stir up the soil and bring the spores of the disease up to the air so they can be germinated and killed. They should give deep plowing in order that a large amount of subsoil moisture may be maintained.

Each farmer should select his seed flax for next year while the crop is yet in the field. He will thus know whether he is selecting his seed from a diseased area or from a clean crop.

We hope that this may aid you in helping others of your neighborhood to combat this trouble. We will gladly enclose circulars giving further information on the manner of handling flax to any who send us their address.

THE PROBLEM OF FARM HELP

Howard H. Cross, President National
Soil Fertility League

Perhaps the most serious handicap under which the farmers operate is the scarcity of farm help, and this will be one of the most difficult questions to solve. It requires more labor if we are to have better cultivation and a larger yield. This situation as to labor has existed for many years, notwithstanding that there has been so much labor-saving machinery brought into use within the last generation.

How is this problem ultimately to be solved? It cannot be done at once. The condition is chronic. The cause must be removed.

If a large majority of the young men that are growing up on the farms will stay there, we will have no such labor problem; but they will not do it. Years ago the erroneous opinion prevailed that farming was not a very high ambition with the young man; that

if he wished to grow in wealth and influence, he must go to the cities where the crowds were. The information that came to him was to the effect that good jobs could be had easily, and advancement was sure and rapid. Unfortunately he heard so much more of the one who made a success than of the other nine who failed to do so that the young man was really misinformed. Query: How shall the young man—and woman too for that matter—be kept upon the farm?

You cannot hold them. They must be made to see the opportunities that scientific farming will bring to them; that by the new methods the profits will be as dimes to nickels as compared with the old way; that there is no better business than cultivating the soil; that it is one that is being looked up to, and will be more so as the years go by. The farmer is no longer the "hayseed" of the last generation, but an up-to-date citizen, with a telephone, with daily papers and magazines on his table; as a rule, he has money in the bank, and all doors are open to him.

The plan being promulgated by the National Soil Fertility League—which is of placing in every agricultural county some trained soil expert, representing the State College of Agriculture, whose business it is to assist the farmer and the farmers' boys to understand and apply the new methods—will add greatly both to the interest in this vocation and to the profits as well.

If the farmer will set aside from one to ten acres and give his son an opportunity to study and apply to this plat what he can learn, and to compete with other boys in a friendly rivalry for better crops, it should be a strong influence in keeping him on the soil. Boys will be glad to take this up. They like the idea of being responsible for something; they like to own something all themselves, even if it is but a dog, a colt, or a calf. Give them a piece of ground like this and let them have some leeway and they will grow toward the farm instead of away from it. Don't do as a neighbor did, who gave his son the titman of a big litter of pigs. The boy fed the pig with a spoon. When it had grown to a 300-pound porker and would sell for \$20, the father took it for the family pork barrel, without so much as a "thank you." The ten-year-old ground his teeth, said nothing, but he thought a whole lot, and when big enough he left the farm. Do you blame him?

Consolidated schools and good roads will greatly enrich country life and make living in the country more enjoyable. Let us have more sociability; mix play with the work, and soon it becomes play to work. These varied conditions will go a long way towards solving the labor problem for the farmer.

Good wages and some opportunities, and a more appreciative attitude toward the farm laborer will help the cause immensely.

It is not profitable to attempt to drive a man into the field; lead and encourage him. Where this spirit prevails there is the minimum complaint of the lack of farm help. There is no place where the modern phonograph fills a greater need than in the farm home. The piano-player is another adjunct that will add to the pleasure of every one. Great artists often denounce machine music, but to most of us the machines do very well and will gladden the heart and make rest from labor doubly sweet.

Country life is the real thing.

More wheat on less land is a good motto. This will leave a respectable area for corn and alfalfa. The latter will prove more profitable than the wheat, in the long run. Such rotation also will result in still heavier yields of wheat.

Alfalfa should be cut for hay as soon as blossoms appear. Most inexperienced farmers allow their alfalfa to become woody by cutting it rather late.

The boy who attempts to take in a ball game thru a knot hole in the fence is in the same class with the man who takes such a narrow view of life that his mental vision moves in a rut; neither gets much out of the game.—Ex.

WANTED. Canvassing Agents at once for the sale of **Compendium of Everyday Wants**, the book of general necessity, price \$1.50; also for **The Devil's Bride**, a wonderful religious allegory, price \$1.00. Either outfit sent postpaid for 10 cents. 50% commission to agents. Big sellers. Address **A. B. KUHLMAN**, Publisher, 138 West Lake St., Chicago, Ill.

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Forty acres under plow. A never-dry river runs across corner. County Road runs diagonally thru land. Irrigation ditch north of land, if you care to use it. Five miles to railroad. One of the finest apple orchards in world near mouth of valley. 400 acres plowed. Fine for grain, flax, etc. 225 acres grazing land. May divide if desirable.

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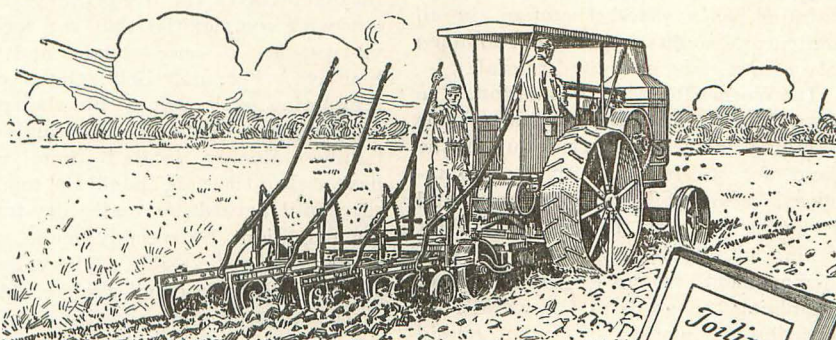
IMPORTANCE OF THE DRY-FARMING MOVEMENT AND MEANS FOR SUPPORTING IT

The President's Annual Address Delivered before The International Dry-Farming Congress at Colorado Springs, Colo., Oct. 15-19, 1911.

Ladies and Gentlemen: The Sixth Annual Convention of the International Dry-Farming Congress has assembled this year under most favorable auspices. The time and place were well chosen. The mid-autumn season in this latitude is delightfully invigorating and Colorado Springs, nestling like a coy maiden at the feet of the majestic Rockies, in addition to a most generous hospitality, affords her visitors an inspiring outlook upon a section of mountain architecture unapproachable in its grandeur. May those lofty peaks but symbolize the motives and purposes of this convention.

Within the shadow of this vast mountain range, we have assembled,

from many states and countries, to discuss ways and means whereby—and with due deference to the influence those mountains exert in the matter of limiting atmospheric precipitation over millions of acres of land—whereby we may make them, nevertheless, productive and habitable. For surely, if Nature unaided—in wild abandon—could build up a soil of such unexampled fertility, notwithstanding the paucity of moisture that is grudgingly permitted to pass above these snow-clad barriers, assuredly science and skill—for beneficent enterprise—should be able to improve upon Nature's processes to the extent of producing profitable crops of vegetables, fruits, and grains. And by the same token, millions upon millions of acres elsewhere, in Mexico, in South Africa, in Russia, India, or South America—lands naturally semi-arid on account of limited rainfall, the result also of natural causes which human agencies cannot remove, in like manner may be rendered productive.



LET this free book show you how to produce your crops at half the cost, how to eliminate the drudgery of farming, how to make \$15.00 a day clear profit plowing for others if you have time. Here's an investment of \$1500 that will pay for itself *quick*, pay all operating cost and make you a clear profit of \$15,000.00 to \$20,000.00. It

gives you the power of 15 fine draft horses, the endurance of 50, and costs you less than 10.

The *Oil Pull* does in *one day* what your best team does in *ten days*. Figure what it is worth to get your crops in way ahead of ordinary methods.

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From Plowing to Marketing the Grain

The *Oil Pull* plows, harrows, seeds, cultivates, harvests, threshes and hauls your grain to market. There's a vast saving in man and horse power at every operation—a vast saving in *money*. And you have the belt power for every purpose on the farm—pumping, silo filling, sawing, grinding, etc. Whether you farm a quarter section or thousands of acres, whether your land is hilly or level, whether you must break sod or turn stubble—the *Oil Pull* is for you. The *Oil Pull* is built in sizes to fit the 160 acre farm as well as the many thousand acre ranch.

It is the only tractor made that uses kerosene at all loads, in cheapest grade, about 7 cents a gallon at most points. Compare this fuel cost to horse feed or even to gasoline, costing 14 cents or more a gallon.

If you want to use gasoline, alcohol or distillate, you can with the *Oil Pull*—but you won't want to.

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Our expert, Mr. L. W. Ellis, formerly of U. S. Dept. Agriculture, is with us to help you solve your plowing and power problems, free, without obligating you at all. Write him for any special information desired. Send postal for Book *now*. Address **M. RUMELY COMPANY - 84101 Main Street, La Porte, Indiana**

Agriculture Adapted to Humid Conditions. To overcome the apparent obstacle of limited moisture seems all the greater because agriculture, as popularly understood and practiced in most countries, is the product of humid conditions.

As an art, modern agriculture was cradled and nurtured in regions of abundant rainfall. The practice of moisture conservation by means of tillage is seldom resorted to, notwithstanding periodical droughts have been, in all modern grain growing countries—humid tho they be—one of the chief scourges of the husbandman. The clouds are relied upon to water the fields when the crops require it, save in strictly arid countries where irrigation direct is sometimes resorted to. If the clouds fail to send copious showers in season, the crops suffer or fail, regardless of the moisture that falls out of season. Thus it occurs that within the tropics, where sixty inches of water falls during the rainy season, crops frequently suffer from drought during the dry period that follows. The system known as dry-farming has a place, therefore, in all agricultural countries and is not confined alone to regions of limited rainfall.

The World's Increased Population. The growth of population in all countries is bringing increased pressure upon the land, for subsistence. The humid regions, because of insufficient area, and in many districts, by reason of their failing vitality, owing largely to mismanagement, are no longer capable of supplying the needs of the world's increasing population. The sub-humid and the semi-arid countries will be drawn upon to supply bread and other necessities as rapidly and as largely as the teachings of science and human skill can render them available for this purpose. Not least among the tasks before us, therefore, is to demonstrate by actual practice and beyond question that humidity is not an essential requisite for successful agriculture.

The quantity of water that is actually required to mature any particular crop has been so often ascertained and under such varying conditions that within reasonable limitations the minimum is readily determined. Add to this minimum the amount of natural and unavoidable loss on account of capillary evaporation and the problem is solved, so far as determining the quantity of moisture that is required during a single season for any specific crop is concerned. This naturally will vary with conditions of soil and climate, all of which must be taken into account, for the problem varies with locality. In short, local conditions are the essence of the dry-farming problem.

The average annual precipitation of different localities already, as a rule, has been determined. The kinds of crop

best adapted to any given section of the country, however, in many instances, must yet be determined by experimentation.

Likewise, whether the moisture is sufficient to grow crops annually or bi-annually, and especially the tillage necessary to insure the storage of sufficient moisture in the soil to support the crop during the entire growing season. And lastly, to disseminate this information among farmers and to convince them that successful agriculture will depend absolutely upon their skill and fidelity in thus managing their farms, are among the helpful agencies that must be employed to introduce agriculture successfully in every semi-arid country.

Soil conditions vary widely, yet the scientific principles involved in dry-farming apply quite universally in all regions of limited rainfall.

Varying Conditions. The fact that conditions vary widely on account of latitude, texture of the soil, elevation, etc., each affecting rapidity of evaporation, involves the dry-farming problem with complexities that call for investigations at once serious and exhaustive. For not only those contemplating settlement within the semi-arid regions, but for thousands of families already located there who have staked their all, should the road to successful agriculture under dry-farming conditions be speedily made, and made as clear as possible. This calls for the dissemination of all available data on the subject and, in addition, the fullest investigations that money and trained experts can make, and the work will continue for many years to come. The cause is worthy of scientific research, highly organized and far-reaching, but should be sufficiently centered upon the pivotal question—moisture conservation and the breeding of drought resisting plants—to enable the farmer to adjust himself to Nature's demands, that he may prosper in proportion as he obeys her mandates.

Dry-Farming a Necessity. The fact that nearly half the earth's surface is visited with less than twenty inches of annual precipitation makes dry-farming a necessity. But a fraction of this vast area is susceptible of irrigation under any circumstances. What cannot be

irrigated must be cultivated by dry-farming methods or remain uninhabitable and practically useless; for human genius cannot remove natural barriers, such as mountain ranges, which place a limit upon precipitation. It can, however, suggest methods of agriculture that may be adjusted to local conditions; methods of tillage that will prevent the unnecessary evaporation of soil moisture, together with the breeding of plants, themselves economic of moisture. These factors taken together will tend to make agriculture not only successful but profitable with less rainfall than in humid districts where, as a matter of fact, the total precipitation during the year is frequently far in excess of the needs of the growing crops. Moreover, excess of moisture is likely to prove as destructive of crops as deficiency of moisture and far more injurious to the land. The fact must be admitted that the swamps and the sea receive a tremendous annual toll of plant food resulting from the "run-off" of humid countries. This loss of fertility, which is beyond estimate, must be made good by some means, so that, between restoring lost fertility and installing drainage systems, the humid countries are quite as severely vexed as the semi-arid countries.

(To be Continued.)

DIVIDE COUNTY

By W. C. Palmer

Divide is one of the new counties of North Dakota. It is the northwest county in the state. Bordering Canada on the North and Montana on the west. The Great Northern and the Soo railroads cross the east half of the county. The writer passed over these railroads on the 23rd and 25th of September and is writing of what he saw along the right of way.

This section is quite thickly settled as compared to some sections in the state. There being an owner for nearly every quarter and few own more than a quarter. The buildings as yet are not large, tho on some of the farms there are as good buildings as can be found anywhere, and especially barns. A number of the farmers have planted trees

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and these have as a rule been planted where they will do the most good. Being in the form of a windbreak and at a sufficient distance from the buildings so that the snow will be kept out of the way.

The crops are the best indication of what the county is worth. As one rides along fields line both sides of the road. Wheat and flax are the principle crops. The indication is that the crop was a good one. Threshers report wheat as going 8 to 25 bushels per acre.

What was the most pleasing was to see fields of corn. Some had been touched by frost a little but only the tips of the leaves had been touched, perhaps five or six inches. The rest of the plant being green. Between Ambrose and Crosby the corn had not been touched by frost at all but stood as green and luxuriant as a rich soil could make it.

There are patches of clover and alfalfa, these are making a luxuriant growth, indicating that these crops and especially the alfalfa will do well.

The soil is in an ideal condition for plowing and many of the farmers are taking advantage of it, this will go a long way toward insuring a good crop for next year.

The business men of the county are active in encouraging the farming interests. Ambrose held a Harvest festival on September 23rd. A large tent had been provided for housing the farm exhibits. Liberal prizes were offered. The farmers responded by bringing in samples of their farm products. The vegetable exhibit was one that it would be difficult to duplicate. They had also provided a program that included addresses on civic and farm topics. Crosby holds its market day on Sept. 26. They are also offering liberal prizes for farm products. With such co-operation between the farmers and the business men and with the natural advantages the county promises to become one of the most prosperous in the state.

ANYBODY CAN NOW AFFORD A FARM ENGINE

The price of good farm engines has gotten so low that everyone can afford to own one. There is no longer any use of the man on a farm working himself to death. Such jobs as grinding feed, pumping water, cutting ensilage, sawing wood, and other tiresome "grinds" should be turned over to an engine. It is ridiculous to think of a man wasting his valuable time and strength on such work when for less than \$38 he can own an engine which will do it.

And the same engine will take a load

off the shoulders of the women folk. No more hand-turning of washing machine, churn, cream separator, etc. A farm engine will do all.

If you want to get a good engine cheap, the thing to do is write the Detroit Motor Car Supply Co., 168 Canton Ave., Detroit, Mich., at once and have them send you their catalog on Sandow Engines. These people are specialists on engine building. They make and sell at \$37.50, an engine worth \$75 of anyone's money. This engine gives ample power for all farm needs. Has only three moving parts—has no cams, gears or valves—burns kerosene (coal oil), gasoline, alcohol, distillate or gas. They ship it anywhere on 15

days' free trial, money back if not satisfied—five-year ironclad guaranty. The \$37.50 engine is complete—2½ H. P. They make larger engines proportionately cheap. Don't go thru another season without a farm engine. Get a good engine like the "Sandow" and let it save you work, time muscle and money.

Every community should have a country life "boosters'" club. The boys and girls engaged in corn growing contests should be among its most enthusiastic members.

A representative wanted at your county fair. Write for terms.

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Harpers' Mag. (or Wk.) (70), Rev. of Rev. (30) and Cosm. (17)	5.85
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World's Work (37), Cosmopolitan (17) and Rev. of Rev. (30)	4.20
Rev. of Rev. (30), World Today (22) and Good Housekeeping, 20	3.60
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Ridpath's Hist. (4 vols.) (35), Amer. Mag. (22) & Rev. of Rev. 30	3.50
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Note. After each name of magazine is a "class" number. You may interchange magazines of the same class number.

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ADDRESS

- W. G. Crocker, Lisbon.



Vegetable, Fruit, and Butter Exhibit at the Ransom County Corn Festival and Exposition Held at Lisbon, Oct. 4-5.

CORN FOR SEED

The best seed corn is that grown on one's own farm. In selecting it remember that next year's corn will be like the corn you select for seed. Therefore select good ears that mature early and that are borne on desirable stalks. In curing the seed corn remember that it will not grow if it freezes before being dried. Shuck ears when they come

from the field and place in racks, or tie up with strings so that ears do not touch. A good place for drying is in the attic or in an upstairs room in the house, provided the air can circulate freely. The corn will not dry well if placed in barns or over grain bins in the granary. Don't forget to gather some seed corn.

make it keep. The killing of the germs is a good deal like allowing the livestock to die from thirst or hunger. It will take some time to restock the farm again, and likewise it will take some time for the germs to increase so as to do the work needed to produce a big crop. A big crop can not be produced without them.

Why Rent a Farm

and be compelled to pay to your landlord most of your hard-earned profits? Own your own farm. Secure a Free Homestead in Manitoba, Saskatchewan or Alberta, or purchase land in one of these districts and bank a profit of \$10.00 or \$12.00 an acre every year.

Land purchased three years ago at \$10.00 an acre has recently changed hands at \$25.00 an acre. The crops grown on these lands warrant the advance. You can

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For settlers' rates, descriptive literature "Last Best West," how to reach the country and other particulars, write to Sup't of Immigration, Ottawa, Canada, or to the Canadian Gov't Agent.

Chas. Pilling
Grand Forks, N. D.

(53)

HARM FROM SOIL DRYING OUT

The more nearly constant the moisture content of a soil can be kept the more available plant food it will have.

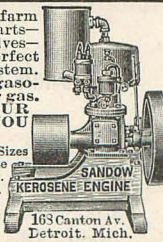
What the moisture does. The moisture is all the time exerting a solvent action, bringing plant food into a form that the plant can use. It, however, does something else fully as important and that is to make-it possible for germs to live. These germs work on the insoluble plant food and make it available. The importance of this work is usually underestimated. When the soil becomes dry the solvent action of the water ceases and the germs become inactive; many of them die. Thus the two principal agencies that make plant food available are cut off at once. The effect that drying has on bacteria is well illustrated in drying fruit or hay to

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How to remedy. The greatest damage is usually done after harvest. The soil is compact, the crop is removed and the rain scant. The land should be disced as soon as cut, in fact follow the binder with the disc, which loosens the surface soil and kills weeds that take large amounts of moisture. This will save a good deal of moisture.

Organic Matter is also necessary for the germs to do well. It furnishes them food and enables the soil to hold more moisture.

Deep Plowing is one of the most effective ways of keeping a good moisture content in the soil. It also gives the germs more space to work in as they live principally in the soil turned with the plow.

Germs and Livestock. The germs are a sort of livestock and the more livestock kept on a farm the more germs there will be in the soil due to rotating crops and applying manure.

Don't neglect the soil germs even if they are small. There are so many of them, and they are working for you just as much as your horse or your cow

Saving Moisture

In the matter of saving moisture in the soil a good many of us are a good deal like the rabbit in the fable. In the winter time he was always speaking of building a house next summer. When summer came and he was reminded of it, he answered: "Every bush is a house now." When a good shower comes we ought to get the moisture into the soil and keep it there. We have no assurance that we will have more rain right away, that there will be enough to ripen the crop, to put the soil in good condition for plowing, to leave the soil with a good moisture content for next spring. More can be done in the thirty-six hours following a rain than at any other time.

If the soil is too dry, then save what little moisture is left. Remember that moisture can not pass up thru loose soil.

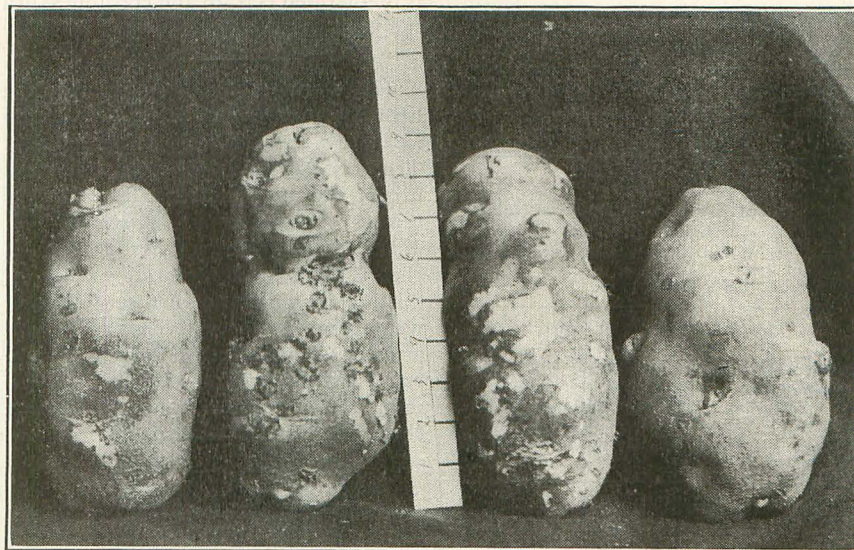
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PLOWING

Plowing is the most common work on the farm, and it is also the most important. More is done with the plow in preparing the seed bed. If the plowing is not done right no amount of work with any other tool can make it right.

What it does: Plowing loosens up the soil and turns new portions of it up to be acted on by the elements so that the plant food that it contains can be made available. In loosening up the

That is, provided that it all gets into the soil and is then kept there till the wheat or corn needs it. One-half pound of dried weeds per square yard of surface takes up enough moisture to reduce the



Four Potatoes, One Hill, Weighing 7½ lbs., Raised by Rev. E. T. Silness, Bisbee

soil the water can get into it more easily and more of it will get in in a given time. In case of a heavy rain for instance, much more of it will soak into a deep plowed soil than into a shallow-plowed one. The other day the writer was in a portion of the state where the crops were suffering for lack of moisture, yet a few days before a heavy rain had fallen. The plowing being shallow it could not soak in quick enough so most of it flowed off from the land, and into the gullies.

When to plow: The land should be plowed when the soil is moist. If it is dry the pulverizing action of the plow is largely lost. When the good housewife makes bread she does not work the flour but works it after she has added the water and yeast, kneads the dough. Plowing the soil when dry would be a good deal like kneading the flour instead of the dough. The best time to plow is in the fall and early at that as this will give some of the effect of the summer fallow. In case the soil is dry in the fall and moist in the spring, better results may come from the spring plowing.

Weeds are Thieves

Fifteen inches of rainfall is sufficient moisture for growing 40 bushels of wheat and 50 bushels of corn per acre.

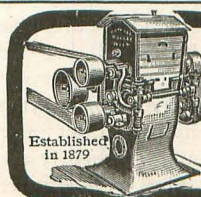
yield of wheat 20 bushels per acre and corn 24 bushels.

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North Dakota Farmer

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Vol. 13 OCTOBER, 1911 No. 4

The road drag is one of the farmer's
best friends.

Soil water is the limiting factor in
crop production. Are you conserving
moisture?

The common drag will conserve more
moisture by far than will be applied to
North Dakota soil by irrigation. In
fact, the drag and the disc are North
Dakota's substitutes for irrigation.

Mr. Farmer, soil water is the limiting
factor that governs the certainty and
size of the crop. Deep plowing and
proper tillage will insure abundance of
moisture. What the crop does not need
can easily be carried over for another
year. None of it should be wasted.

A closer cooperation among farmers
would prove highly beneficial to the
business of farming as well as to farm-
ers individually. All other interests are
promoted by means of cooperation.
The old feeling of distrust among farm-
ers should be dispelled—the sooner the
better.

Single cropping is wrong in practice
and points ultimately to bankruptcy.
The virgin soil may give profitable re-
turns long enough to enable the home-
steader to retire with a competence, but
it will not repeat. As night follows day,
so continuous cropping to wheat will
change from prosperity to adversity.

The dairy cow is a mortgage lifter.
The man that sells cream pays his debts

promptly; he clothes his children com-
fortably. He has the money to do it
with. Milking cows beats dodging
creditors or paying interest or worrying
about the weather. There are worse
things than milking cows. The income
is regular and certain and continues thru
the year.

The Twin Cities are contributing
liberally toward agricultural extension
in North Dakota. Poor agriculture!
The only interest in the state that must
accept outside donations; all other in-
terests being amply provided for.
What is the caliber of her statesmen
that thus compels the state's chief in-
dustry, the source of her support and
well-being, to accept charity? Who
are the fellows already making bids to
run the state government when this ad-
ministration comes to a close? Are
they politicians or statesmen?

The farmer that is conserving moist-
ure all fall to nourish next summer's
crop will scarcely fail to reap an abund-
ant harvest. The farmer that takes no
thought for the moisture that falls be-
tween harvest and the next spring seed-
ing, but who depends upon moisture
falling at such times and in such quanti-
ties as the growing crops require is
about as sure of failure as the other is of
success and both are reasonably sure.
The time to conserve moisture is when
we have it to conserve.

Shock threshing seldom pays. Should
the season prove unfavorable, the
threshing is done late and not infre-
quently the grain is spoiled. On the
other hand, if the grain is promptly
stacked, the teams can be kept at the
plows when weather is unfavorable for
threshing, or until a machine can be
had. Moreover the grain improves
when it goes thru the sweat in the stack.
There are thousands of acres of grain in
the shock, waiting for the machine, al-
most every year after the plowing season
is really over. Far better to stack the
grain and plow early. Many days of ex-
cellent plowing may be had while wait-
ing for fair weather for shock-threshing.

Alfalfa is a coming crop. Farmers
generally will find it profitable to seed at
least a small field of this excellent le-
gume. A few acres can be started at
small expense and its value tested.
From a small beginning, larger areas can
be grown, and doubtless will be, once
the value of alfalfa has been thus proved
by experiment. There are few sections
of the state where alfalfa will not prove
successful if the ground is properly pre-
pared and the right kind of seed sown.

From all accounts, the Grimm variety is
most satisfactory.

Ground should be plowed deep, well
packed down with subsurface packer
and a fine seed bed made with common
drag. Land must be thoroly drained
and well-manured.

"Swat the fly" is good advice. It en-
dangers health. Swat the weed is also
good advice. It endangers the farmer's
purse. Many times the drought that
destroys the crop is caused by the greedy
weeds sucking the moisture from the
soil. Without the weeds there would
have been moisture sufficient for the
grain. By dividing the moisture, how-
ever, between weeds and grain, a most
foolish thing to do, the weeds get away
with so much of it that the grain fails to
make a crop. The deluded farmers
name the trouble "drought." The evil
is correctly named, only it is not so
much the shortage of water that causes
the trouble as the presence of weeds.
The weeds cause the shortage of water.
If God sends plenty of water and the
Devil sends plenty of weeds to con-
sume the water, where does the farmer
get off at? Is he going to let the weeds
take the water and then blame the
trouble on the climate? Swat the
weeds. Don't slander the state.

The state, in general, has received
copious rains this fall. In some sec-
tions, as high as twelve inches fell within
a period of four weeks. Owing to the
fact that evaporation will be rather light
from this time on, and that freezing
weather will soon lock up the moisture
until spring, there is every prospect that
there will be an abundance of sub-soil
moisture to start the crops next spring
and also to support them during the
early part of the growing season. With
reasonable spring and summer showers,
there should be a bumper crop next
year.

But little effort has been made, how-
ever, to conserve moisture for next
year's crop. This is a mistake. Every
farmer should look upon moisture as an
absolutely essential element and should
realize that allowing any portion of it to
unnecessarily escape is to jeopardize the
succeeding crops. An element as pre-
cious as water should be husbanded con-
stantly. Adding a dollar's worth of
additional labor on each acre of land, as
suggested by President Worst, will prac-
tically insure abundance of sub-soil
moisture at all times. With the soil
well saturated, the spring and summer
showers, as a rule, are sufficiently co-
pious to keep the grain growing from the
time it germinates until it is ready for
the binder. The really scientific farm-
er will not take chances upon a factor of
such tremendous importance as moist-

Pure Food Advertisers

The products advertised below are in compliance with the pure food law of North Dakota and of the highest grade.
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HOME BRAND

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JELLY

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NUTRITIOUS-WHOLESOME

One package, 10 cents, makes one pint of wholesome Fruit Jelly. All flavors from true fruits.

The Purest of Pure Food Products

are packed under the Brands of

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PURE FOODS

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PURE FOODS

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FOOD PRODUCTS

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CEREKOTA

Self-Rising

Pancake Flour

Is a Scientific Preparation of Healthful Appetizing Ingredients
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GUARANTEED Pure and Wholesome

Ask Your Grocer for a Trial Package

Bemmels Milling Company

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Lisbon,

North Dakota

ure. He will prevent its evaporation to the extent of his ability. This simply requires additional tillage and the elimination of weeds. Lack of the former and presence of the latter costs the farmers of this state more actual money every year than several times what it costs to support the state government.

WILEY VICTORIOUS

Has Wiley routed his enemies and won a complete victory? The public have given their verdict. Big interests are keeping still. Food adulterators, mixers of dope, called whiskey, and other beverages, fake patent-medicine vendors, all are quiet. They are not whipped. The powers that grappled with Wiley and hoped to overthrow him are still in existence. Their tenacles may have been withdrawn from his throat, but they are left where, if unguarded for a moment, they may spring upon him again. Those who would undermine his work must be taken from their places before there can be safety.

Wiley has won a victory with the people because he has been honest; he has been fearless; he has worked for the interests of the people altho terribly handicapped. Big influences and big interests have made dope into whiskey; they have emasculated what was intended to be the best features of the Food and Drug Law; they have succeeded in endorsing benzoate of soda; they look upon sulfites as harmless in one class of foods, but do not deny its danger in another; they have dilly-dallied and resorted to technicalities to secure prolongation of life in the use of products as with saccharin which are recognized as harmful and which, eventually, must go and never should have had a place in any article of food or beverage.

Ever since the Denver Convention the veiled threats there made have been made good as far as possible. Influences have been at work which have made it necessary for honest food officials to keep ever on the guard. Support has been withdrawn where it should have been given. The influences of the food adulterator were made felt in high places and those who dared oppose were crushed and ground to dust without mercy by those who posed as friends of pure foods and drugs, when, as a matter of fact, either thru ignorance or, more likely, wilfulness or influence, they were friends of the worst dopesters in America.

Let us hope that the partial victory won by Wiley, and it is not Wiley, but the principle which he has stood for, (the over-throwing of which principle and Dr. Wiley would mean the over-

throwing of the effectiveness of every Food Law in America) may go on until the victory becomes complete; and that Congress, thru the demands made upon it by the people, shall be forced to reorganize the work of the Food Department; strengthen the Food Law; cut the red tape; and hold one man responsible and let that man be Dr. Wiley.

The writer cannot do better than quote the following from one of the trade journals:

SHALL WE FIRE DR. WILEY?

Dr. Harvey H. Wiley is a public servant. He is Chief of the Bureau of Chemistry, and incidentally chief pure food inspector of the United States.

It is a big job. And for Dr. Wiley to fill it as efficiently as he has, proves that he is a big man.

The country respects Dr. Wiley and trusts him. The food adulterators fear him and do not hesitate to malign him.

That is enough for us to know.

Doubtless Dr. Wiley has made mistakes like the rest of us. He has had ample opportunity, for he has been doing things. The only man who doesn't make mistakes is the man who is loafing on the job. But if Wiley has made mistakes, even his enemies will hesitate to aver that they were other than Honest Ones.

They are after Wiley's scalp. It is charged that the doctor hired an expert chemist for government work at a rate higher than allowed by law. Perhaps this was a mistake. Men who are doing things are sometimes liable to violate technical rules and restrictions in their zeal to accomplish the ends toward which they are bending their efforts. That is the extent of the charges against Dr. Wiley. . . . Dr. Wiley has been a faithful official for some twenty years. He has been a fearless one. He has accomplished important reforms. He has made many enemies. We love him for the enemies that he has made. If we fire him, it will be a long time before we will get another Dr. Wiley.

We who are in the business of making and distributing foods realize best how much vigilance is required to weed out the humbuggery, the quackery, the rank dishonesty that would otherwise fasten its blood-sucking tentacles upon this business. We know that there is no other business under heaven which so demands scrupulous, disinterested, fearless regulation as that of feeding the nations' men and women, and its children. We know, too, that the work Wiley has done has been tremendously effective in placing the business of manufacturing and selling foodstuffs upon a higher plane.

Ransom County Corn Festival

On October 4th and 5th Ransom County held a Corn Festival and Exposition. Early in the summer it was learned that the corn acreage in Ransom County had more than doubled and to foster this enterprise the merchants of Lisbon determined to hold a Corn Festival. The promoters of this enterprise were simply overwhelmed with exhibits, and none were more surprised than the farmers themselves at the wonderful display of well-matured corn and hundreds of other exhibits. We are pleased to furnish two partial views of the exhibits, which completely filled the large armory building. There were over a hundred five-pound jars of butter and one of the best displays of vegetables ever seen in the state. Instead of the skin-game, usually found at county and state fairs, free exhibitions were given thruout each day. Nearly fifteen hundred dollars' worth of premiums were given to the exhibitors, who had made no preparations whatever for the exhibition other than to select from their ordinary crops. With an annual Corn Festival thus established the acreage devoted to corn raising in Ransom County will rapidly increase. We hope every county in the state will thus encourage this enterprise. The more corn and the more livestock the less uncertainty at harvest.

So much satisfaction has been expressed with the cook book, which we gave as a special premium about two months ago, we have decided to offer a copy of this cook book to everyone sending us one dollar for a two years' subscription or two one-year subscriptions. The first edition of one thousand has been entirely sold.

In bulletin No. 92, N. D. Experiment Station is the following statement: "The data presented shows also the general harmful effects of the presence of water in paints; the effect of applying paints where the lumber is not thoroly dry; and to some extent there are experiments showing the relative value of other oils used in part or whole for linseed oil. There are certain experiments showing the value of substitutes for turpentine. It may be said that the use of a small quantity of turpentine has generally proved beneficial, while the addition of a large amount of turpentine has brought about conditions unsatisfactory as shown in the wearing quality of the paint."

SCHOOL DIRECTORS----

Send 30 cents for a copy of the
NEW SCHOOL LAW
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The North Dakota Farmer, Lisbon, N. D.

Boost your state farm journal—
The North Dakota Farmer.

Livestock Department

FARM AND STOCK NOTES

The best place to salt butter is in the churn.

Overloading is the cause of balky horses.

Keep no useless stock to eat up the profits.

The amount digested and not the amount eaten gives horses strength.

Animals must be fed on food they relish to secure the best results.

In all breeding the tendency to transmit a defect is greater than the tendency to transmit a good habit.

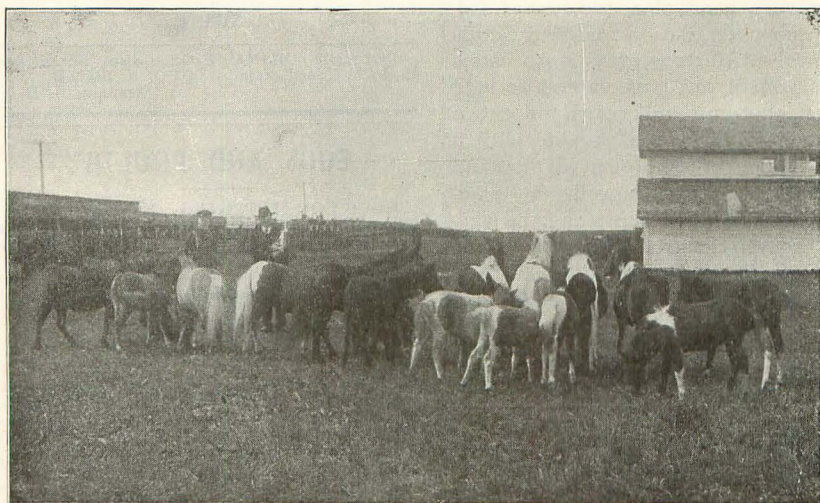
Make the burden of the horses as light as possible by keeping the plows in a good condition.

Shape makes type and the type and condition determines the utility characteristics of all kinds of animals.

No profit can be made on the farm where the surplus of one transaction is swallowed up by the losses on another.

There is nothing that so destroys the egg producing qualities of the hen as continuous in-and-in-breeding.

Fertilizers will give quicker results than manure, but the effects of manure are, as a rule, more lasting and durable.



Shetland Ponies on the Farm of L. H. White, Cogswell, N. D.

Selling off the young thrifty growing stock is what keeps many a farmer poor.

The color of the egg shell results from the breed of hen laying the egg.

From now on all fowls will thrive better if given a good feed of whole corn every night.

In feeding, every sow has a certain limit which if passed seriously retards the growth of the young litter.

Stunted animals are very often made so in the first few days of their lives by being chilled thru exposure.

Activity and intelligence are necessary characteristics of a good farm horse.

The management and care of the stock will decide to a great extent its profitableness.

Labor is never spent in vain when it leads to the accomplishment of good results.

It seldom adds to the beauty of a horse to rear his head out of the way he naturally holds it.

The law of supply and demand largely determines the cost of commodities, but the cost of production determines their profitableness.

It should be born in mind, that in all seasons, horses in order to be able to perform hard labor must have plenty of nutritious food.

A horse must have something else besides a long string of ancestors to recommend him. He must possess individual merit.

To make farming most profitable, and to realize the best prices, all products must be marketed in the most attractive and finished form.

The farm products should be put in the form in which they will command the most money and yet leave the farm in the most productive condition.

A variety of stock and of crops is most essential to the proper cultivation and the highest fertility of the soil and also in securing the greatest profit in farming.

It is a good plan to give a cow a pailful of warm slop, made of water and bran, soon after calving and to keep her on a comparatively low diet for about a week afterwards.

It is a long wait between the planting of an orchard and the appearance of fruit on the trees, and a good deal of time will be lost if the wrong sorts are chosen.

Experience has proven that it is far more economical to maintain animal heat by providing warm, dry shelter, than by the feeding of grain without adequate shelter.

A heifer that is to be raised for the dairy should be handled and made accustomed to all necessary manipulation from the time she is a calf until maturity and she will make a better cow.

THE BEST LINIMENT

OR PAIN KILLER FOR THE HUMAN BODY

Gombault's
Gaustic Balsam

IT HAS NO EQUAL

For the Human Body — It is penetrating, soothing and healing, and for all Old Sores, Bruises, or Wounds, Felons, Exterior Cancers, Boils, Corns and Bunions. CAUSTIC BALSAM has no equal as a Liniment.

We would say to all who buy it that it does not contain a particle of poisonous substance and therefore no harm can result from its external use. Persistent, thorough use will cure many old or chronic ailments and it can be used on any case that requires an outward application with perfect safety.

A Perfectly Safe and Reliable Remedy for
**Sore Throat
Chest Cold
Backache
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Sore Lungs
Rheumatism
and
all Stiff Joints**

REMOVES THE SORENESS—STRENGTHENS MUSCLES

Cornhill, Tex.—"One bottle Caustic Balsam did my rheumatism more good than \$120.00 paid in doctor's bills."

OTTO A. BEYER.
Price \$1.50 per bottle. Sold by druggists, or sent by us express prepaid. Write for Booklet R.

The LAWRENCE-WILLIAMS COMPANY, Cleveland, O.

FORESTER H. SMITH

Breeder of
**POLAND CHINA PIGS
SHROPSHIRE SHEEP
SEED GRAINS**

I have a bunch of sheep and hogs which can not be equaled in North Dakota. With twenty years experience and the greatest care in selection and breeding I offer for sale this fall rams from imported stock which a man would be proud to have at the head of his flock. Also a limited number of Boars. Write me for prices.

FORESTER H. SMITH,
Amenia, N. D.

WHEN MILK SOURS

G. L. Martin, N. D. A. C.

The souring of milk is not unlike the souring of fruit juice or vegetable matter. It is due to the action of a particular kind of micro-organism which we call bacteria. These little organisms are a good deal like other forms of life in that they must have air, moisture, warmth and food in order to live, multiply and work. The particular food of a great many bacteria is sugar and the product which they manufacture is called acid. For instance, when the juice is pressed from the apple it is called sweet cider because of the sugar it contains. But soon the bacteria enter from the air, from unclean utensils, or from other surroundings and at once begin work upon the sugar which soon turns the cider hard and finally it becomes vinegar unless put into an airtight keg and kept in a cool place.

Composition of Milk

Among the constituents of milk are water to the amount of 87.1%, fat 3.9%, casein 3.5%, mineral matter .75% and sugar 4.75%. When the milk is first drawn it tastes sweet because of the milk sugar which it contains just the same as cider tastes sweet when it is first pressed from the apple. The average milk as will be seen contains nearly 5% sugar which means about 5 pounds for every one hundred pounds of milk, which when changed into acid by the bacteria produces what we call souring.

Conditions Necessary

To work best, these bacteria require warm surroundings of about 70 degrees F., or room temperature, besides they must have some air and enough moisture to keep their food, the sugar, in so-

lution. The milk, the same as cider, has all these conditions present, so just as soon as it is drawn the bacteria begin to work rapidly because since the milk is warm all the conditions necessary are exactly right. Then unless the milk is cooled they continue rapid work until all the sugar is changed to acid—the milk soured.

How to Prevent Souring

Since these little organisms must first get into the milk then have a warm temperature in which to work, the way to prevent the milk from souring is to keep the bacteria out as much as possible then make the surroundings so cold that they cannot work. To do this have all surroundings as yard, stable and stall in good sanitary condition, then curry and brush the cow at least with as much care and attention as is given the horses. Keep all pails, strainers and other milk utensils scrupulously clean and finally cool the milk to 50 degrees F. immediately after milking. Setting milk into an ice box, a cave or a cellar to cool is not a very good plan because of frequent poor ventilation and bad odors. A more satisfactory way is to make either a small vat, large enough to hold several shot-gun milk cans, or cut a barrel into halves and provide with a well-fitted cover to keep out all dust and shield the heat from the sun. By placing this between the pump and the watering trough, then run a spout from the pump to the cooler and another from the cooler to the trough, fresh cool water

CAL Honey on trial, freight paid, 11c lb. Large sample 10c. List honey, nuts, fruits, etc. free. Spencer Apiaries Co. bx. 125, Nordhoff, Cal.



Purebred Registered
HOLSTEIN CATTLE
The Greatest Dairy Breed
Send for FREE Illustrated Book
Holstein-Friesian Assn., Box 135 Brattleboro, Vt.

CLASSIFIED ADS.

One Cent a Word

Small advertisements will be classified under appropriate headings at the low price of one cent a word for each insertion. Cash must accompany all orders. Each initial or number must count as one word **TRY IT HERE.**

LIVE STOCK**HORSES****FOR SALE**

Percheron, Belgian and Shire horses
J. W. & F. T. PETERSON, Litchfield, Minn.

MEADOW LAWN FARM has for sale prize-winning Young Percheron Stallions, and Shorthorn Bulls bred hornless.

Our large herd contains many of the finest individuals from the east. Prices right with terms to suit purchaser.

Our motto: The best is none too good.

A. H. WHITE, Kramer, N. D.

CATTLE

North Branch Stock Farm. High class Shorthorns. Herd, bull, Supreme Judge 177722—pure Scotch, John Donnelly, Grafton, N. D.

FOR SALE**GALLOWAY CATTLE**

J. W. & F. T. PETERSON, Litchfield, Minn.

SWINE

POLAND CHINA PIGS, also Shropshire sheep. Seed grain. GEO. N. SMITH, Amenia, N. D.

EGGS AND POULTRY

EGGS FOR HATCHING. Express prepaid \$2 per 15, from pure bred Golden Wyandottes and White Plymouth Rocks (Fishels strain.) Choice stock for sale. Send for Catalog. C. H. McGEE, Oriska, N. D.

MISCELLANEOUS

Envilla Stock Farm, Cogswell N. D. will quote you special prices on Angus Cattle, Shetland Ponies, Duroc Jersey Hogs, Wolfand Fox Hounds, Pure Bred Poultry, Pet Stock. Write them.

FARMS FOR RENT OR SALE ON CROP payments. J. MULHALL, Sioux City, Iowa.

FOR SALE One of the finest and best improved farms in this county, 3 1/2 miles from Bowbells, part cash, worth \$5,000, for \$3,900. H. L. Lyon, Bowbells, N. D.

THE MOUSE RIVER LAND AND LOAN COMPANY AND THE MOHALL STATE BANK

At Mohall, Renville County, North Dakota, have a large list of farm lands for sale, and terms and prices are better than in any other part of North Dakota. They would be glad to have you write them for prices and terms. Our slogan is, "Own your own home in the Mouse River Loop."

FOR SALE: Registered Jerseys. Bull calves and one mature Bull at reasonable prices. W. G. Weeks, Backoo, N. Dak.

RED-POLLED AND GALLOWAYS**Shropshire Bucks**

J. S. BIXBY, - - LISBON, N. D.

WANTED—Young Men to take the Railway Mail Clerk examination called for the Dakotas; salary \$900, work half time, common school education required. Passing means appointment. American Institute, Dept.—68 Dayton, Ohio.

FOR SALE. Creamery in first class condition at a bargain at Crystal, N. D. For further information write to J. S. GESTSON, Sec. CRYSTAL, N. D.

FARMS WANTED

TO FARM OWNERS: Our plan puts you into communication with buyers at low cost; write for particulars.

Co-operative Advertising Company
Fergus Falls, Minn.

THE ENVILLA STOCK FARM

COGSWELL, NORTH DAKOTA

SHETLAND PONIES. Your own price.

REGISTERED ANGUS CATTLE. Must be sold.

WOLF AND FOX HOUNDS that will catch and kill. Fine pups \$5.00 each

PET STOCK OF ALL KINDS. PURE BRED POULTRY, all varieties.

We can please you both in Quality and Price

L. H. WHITE, Prop.

COGSWELL, N. D.

North Dakota Breeders**We Are With You**

Why not send for special rates at once

Address NORTH DAKOTA FARMER, LISBON, N. D.

Patronize N. D. Stockmen

F. O. Knerr, Fargo	.91½
W. A. Krause, Walhalla	.91½
Albert Anderson, Mott	.91
John Michaels, Judson	.91
Frank A. Pace, Newfolden, Minn. .	.91
Phil Palmer, Steele	.91
A. J. Hed, St. Hilaire, Minn.	.91
P. Jacobson, Winger, Minn.	.91
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Palermo Creamery Co., Palermo .	.91
Wm. Engel, Ray	.91
Walter Larson, Yucca, N. D.	.90½
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Soren Westergaard, Grafton	.90½
Wm. Larson, Minot	.90
Victor Glantz, Carson	.90
Ward Katherman, St. John.	.90
Grand Forks Creamery	.90

EXPORT TRADE IN PERCHERONS

Importations of Percheron horses have been made for more than sixty years, are still considerable, and are well known. It will, however, be a surprise to many to learn that exports of Percherons have grown to considerable proportions, and are rapidly increasing.

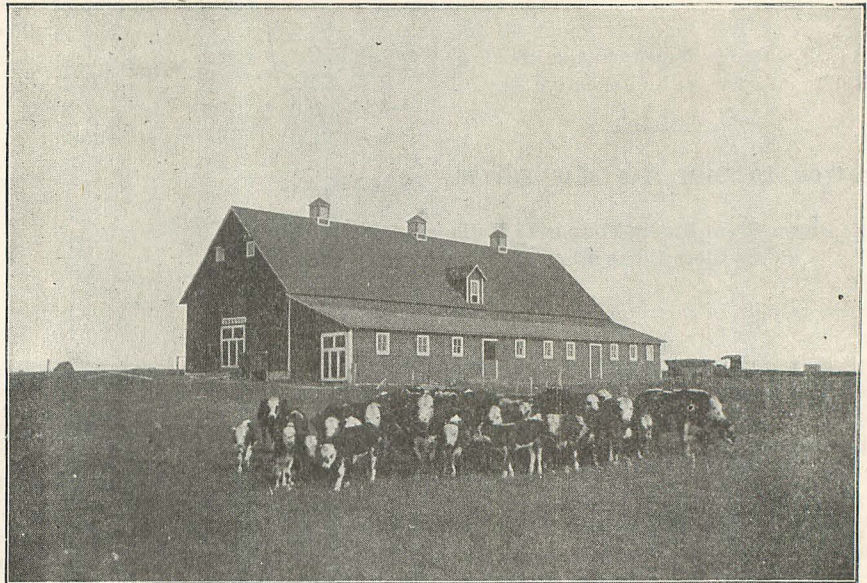
John W. Brant, accountant Canadian National Livestock Records, advises the Percheron Society of America that Percheron importations to Canada in the past two years are as follows:

In 1909, 283 head, about 65% from the United States; in 1910, 442 head, 45% from the United States; in 1911, from January 1st to July 17th, 264 head, 67 from France and 197 from the United States.

Manitoba, Saskatchewan and Alberta have taken the most, but a good many have gone to Ontario.

An aggressive advertising campaign has been waged by the Percheron breeders in Canada, and their aggressiveness in bringing out good shows at the leading Dominion fairs has brought the breed into general notice, so that the Percheron migration to the Canadian provinces promises to be greater than ever this fall.

Mexico has also taken some Percheron shipments, altho the political disturbances which have prevailed there for the past year has put a damper on business. The International Land and Livestock Company, of Jimenez, Chihuahua, has made several purchases, however, and Manuel M. Urquiza who is located near the city of Mexico, has made some shipments and has also exhibited his Percherons at some of the Mexican livestock shows.



A Bunch of White-faces on the Line of the Great Northern.

The Origin and Disposition of Live stock for September

States	Origin of Livestock received					Total Cars
	Cattle	Calves	Hogs	Sheep	Horses	
Minnesota.....	28052	7281	24462	14300	29	1578
Wisconsin.....	2315	950	3199	2979	.....	159
Iowa.....	.....	.....	60	.....	118	6
Far South.....	.....	.....	.....	1254	214	13
So. Dakota.....	5775	651	2159	2719	225	270
No. Dakota.....	14535	1046	874	14948	69	637
Montana.....	6802	391	.....	55297	288	522
Far West.....	.....	.....	.....	10684	.....	36
Man. & NWT. ....	.....	.....	.....	.....	.....	.....
Far East.....	79	.....	.....	.....	.....	2
Totals.....	57558	10319	30754	102181	943	3223

Disposition of Livestock						
S. St. P. Pkrs.	16822	6656	24241	104331	.....	.....
Cy. & St. Butch ..	1146	716	1634	427	.....	66
Outside Pkrs.	1841	166	4358	1990	.....	118
Minnesota.....	3297	384	.....	12329	207	160
Wisconsin.	2248	79	196	5123	233	110
Iowa.....	7459	182	108	6093	33	240
Nebraska.....	.....	.....	.....	.....	.....	.....
Kans & Mo.....	47	.....	.....	.....	.....	1
S Dakota.....	187	.....	.....	1952	.....	13
No. Dakota....	774	.....	204	1890	.....	28
Mont. & West .....	.....	.....	.....	.....	.....	.....
Far South.....	.....	.....	.....	83	1	2
Man. & NWT.	22	.....	.....	487	1	3
Mich. & E. Can. ....	.....	.....	.....	.....	22	1
Chicago.....	14267	810	87	52496	.....	765
Ills (ex. Chicago)	5780	96	.....	115	96	181
Eastern Points ..	4903	.....	.....	420	303	135
Returned.....	79	.....	.....	.....	.....	2
Totals.	42050	2433	6587	83405	896	1825

Subscribers REMEMBER to Mention

THE NORTH DAKOTA FARMER
When Writing Advertisers

Are you boosting the North Dakota Farmer? One year, 50 cents; three Years, \$1.00.

Rusted Straw Not Injurious to Feed Live-stock. Relative Value of the Different Kinds of Straw

W. B. Richards, Prof. Animal Husbandry

Judging from the number of inquiries received by me recently, it is obvious that many farmers are doubtful in reference to the advisability of feeding rusted straw to their livestock, for fear it will prove injurious. This is a matter of considerable importance to a large number of farmers of this state again this year for the reason that there is a shortage of forage in many localities in the state, which makes it necessary for many to depend quite largely on straw for a roughage for carrying over their livestock.

Rust on straw has never been known or reported anywhere, to the knowledge of the writer, to cause any injury when fed to any class of livestock. In case it was injurious, it would be commonly known, because cattle and horses have always been allowed free access by farmers to straw stacks where red or black rust was prevalent and no ill effects have ever been reported.

As to the feeding value of straw affected with red or black rust, compared with straw void of rust or from well matured grain, there is no question but what the rusted straw has a higher feeding value. The reason for this is because the stem of rusted straw remains greener. It is greener so to speak for the reason that the rust infection, from the nature of its action, prevents the food supply from passing up into the heads to grow the kernels, but keeps it back in the stem. In the light of these facts there is no question but what there is more nutrients in the rusted straw.

Chemical analysis would determine the difference of the nutrients present, but no analysis to my knowledge, of rusted straw, has been made.

Those who have rusted straw should not hesitate about feeding it. There is considerable feeding value to straw of all kinds. They rank as nearly as it is possible to determine in the following order: Oats, barley, flax, wheat and rye. Avoid feeding straw exclusively as a roughage or for the whole ration. There is too much cellulose material in it for the digestive system of the animal to handle properly. Feed a little hay and grain with the straw and better results will be obtained. Feed as the grain portion of the ration, some of the more laxative kinds of feeds, like bran or oats and roots if obtainable.

Some also fear the presence of smut on straw for feeding purposes. Experiments have proven that an animal will not get enough smut on straw or corn stover to cause it any injury.

Flax Straw

Flax straw contains considerable feeding value as indicated by the ranking given it with the other types of straw, mentioned above. The straw proper or stem and leaf portion does not contain much nutrients, but there is always present in flax straw considerable immature seed, which is blown over with the straw in threshing, and some mature seed left in the heads. A small quantity of this seed will furnish considerable nutrients when consumed in connection with the stem portion.

If a farmer is to be classed as a good farmer in North Dakota, he should keep enough stock to consume all the straw produced on his farm, fed only as a portion of the ration. There is no question in my mind but what it would pay our farmers to buy the amount of feed necessary above what he raised on his farm to feed with the straw, in order to get a proper ration. Straw has value but the only method by which value can be obtained from it, is to feed it to stock.

Poultry Department

Geo. Hausmann, Hillsboro, N. D.

INDIAN RUNNER DUCKS

Mrs. B. F. Wilcoxon, Hillsdale, Wyo.

They came from India. When they walk they stand straight up. They do not waddle like other ducks, hence the name. They are not very large. They lay a large white egg which is superior to hen's eggs. These ducks will produce a greater number of eggs than the same number of hens of any breed that I have ever tested them with. Take, on an

average, nearly every duck lays an egg a day. The eggs are in great demand, especially in winter time when the hens go on a strike. It is a pleasure to raise them because you do not have much trouble with them. I doubt if there is a fowl produced in this country that is more easily raised than ducks; and I am sure none so successfully hatched artificially. I seldom ever have a dead duckling in the shell. I will venture to say

Are you boosting the North Dakota Farmer? One year, 50 cents; three years, \$1.00.

S. C. Buff Orpington S. C. Black Orpington

M. Bronze Turkeys, M. Pekins Ducks and Indian Runner Ducks.

"THE BEST IN THE WEST"

Maude I. Matthews, Box 579

Larimore

N. Dak.

BARRED ROCK

Choice Stock and Fair Treatment.

ROBERT B. REED

Box 2.

Amenia, N. D.

WILD ROSE, Yorkshires. Several choice boar pigs for sale. A. R. Sherritt, Blanchard, N. D.

BUFF WYANDOTTE EGGS for hatching. Fowls for sale. Also twelve breeds of Fancy Pigeons. M. B. NOBLE, Hillsboro, N. Dak.

PETERSON'S BARRED ROCK

Bred to Lay and Win. Won over 90 prizes. Eggs from utility stock \$5.00 per 50 \$3.00 per 100. Mating list free. PETERSON BROS. Harwood, N. D.

HAUSMANN POULTRY FARM

Breeders of W. Wyandottes and S. C. W. Leghorns Hillsboro, - North Dakota

PURE WHITE WYANDOTTE Eggs for hatching \$1.50 for 15, \$7.00 for 100, \$14.00 for 220. E. A. Tow, Lisbon, N. Dak.

S. C. W. LEGHORNS

Prize winners' stock for sale. Eggs a specialty. GEO. A. FOWLER, Box 486, Casselton, N. D.

SILVER LACED WYANDOTTES

Thoroughbred, Wide Open Laced, Big Utility Birds, Bred for Business. Tested Fertile Eggs for Hatching, 15 \$1.50; 30 \$2.75; 45 \$4.00; 100 \$8.00. Satisfaction Guaranteed.

Anthony Elm, Lansford, N. D.

WHITE WYANDOTTE eggs for sale from good stock.

M. C. JAMES, Valley City, N. D.

POULTRY BRED FOR LAYING

See my big circular before you place that order for eggs. It will please you. It's free, 2 cent stamp for mailing. Mrs. B. F. Wilcoxon, Hillsdale, Wyo. Dept. 5.

WHITE AND BUFF WYANDOTTES that always win. Choice stock for sale. EGGS for hatching from pens of well-selected stock, sure to produce winners. Prices reasonable. Satisfaction absolutely guaranteed. Write me your wants. L. O. CUMMINS, Casselton, North Dakota

FOR SALE. M. B. Turkey Toms, raised from our Diploma Stock, \$5.00 and up; also Eggs from 26 varieties poultry. Catalog free. L. GULDEN, Osakis, Minn.

Rose Comb Black Minorcas

Eggs for sale, \$2 for 15 eggs.

C. WYSH,

CASSELTON, N. D.

PURE BRED WHITE PLYMOUTH ROCKS Eggs at \$1.50 per 15, \$8.00 per 100. Eggs from R. C. Brown Leghorns at \$1.25 per 15, \$7.00 per 100. Eggs strictly fresh and fertile. L. G. Gemmill, Edinburg, N. D.

that ducks are the strongest and hardest of all fowls hatched with an incubator. How they grow and thrive! For profit they do certainly take the lead. Most of us would not see much pleasure in any fowl if it were not for the profit in them. But a fowl that produces so many eggs in the winter and makes such fine fryers and roasters so quickly and with so little feed and trouble cannot help but be satisfactory. The body is long. They are good foragers. They will pick up a good portion of their living. Ducks should not be yarded or housed with other poultry; not even geese as they do not mix any better than oil and water.

As this is not the proper time of the year to discuss the subject of caring for the young ducklings. I will write about the care of the adult ducks during the winter months. They should have good shelter. The house need not be expensive, the floors should be supplied with bedding of straw always kept clean and dry. No roosts are needed as ducks sit on the ground. The houses can be built very low. Ducks need exercise and plenty of grass or something in the way of green food. During winter they sometimes lose their appetites unless something green is fed. If possible it should be fed in their mash. I have a rye pasture adjoining their runs which furnishes green food for a portion of the year.

When the weather is very cold, ducks should be kept indoors. Their feet are tender and cause the birds much suffering when they are allowed to wander thru the snow.

Don't feed whole grain very often as it is not their natural food at least they do not thrive on it as they do on ground grain mixed with cooked vegetables or green food.

I often boil grain and mix it with alfalfa, meal and beef scraps. They do not digest whole grain like other fowls. They prefer sand or coal cinders to any other grit.

I have a large barrel, cut in two, sunk into the ground so that the ducks can bathe in it. Ducks do well, yarded. They don't need high fences. I keep them yarded so as to feed them separate from other poultry. They lay in nests on the ground and always cover the eggs over. The eggs are not easily broken. A slight noise always frightens them. They notice strangers. Dogs should not be allowed in their yards.

A great many people do not like ducks

but if they would investigate duck culture they would find it to be very profitable.

I shall sum up in these words: Indian Runner Ducks are a fowl of beauty, light eaters, do not suffer from vermin, not troubled with disease, non-sitters, great egg-machines and money bringers.

They lay well until eight or nine years old, so you do not have to hatch every spring to have pullets to lay in the winter.

The eggs can be shipped a long distance as they are not easily broken. I am not giving this to the press as an advertising scheme, but plain statements of facts as I have found them the greatest layers of any breed.

SAVING MONEY ON FARM EGGS

Improper and antiquated methods of handling eggs in the United States result in losses that reach an estimated total of \$45,000,000 annually. This is 17 per cent of the estimated total value of the entire crop. Practically all this loss is borne by farmers and other producers, and a large part of it can be prevented. How the Department of Agriculture thru its Bureau of Animal Industry is solving this problem is told in Bulletin 141 just issued, entitled "The Improvement of the Farm Egg."

In order to show how this loss might be prevented, the Bureau of Animal Industry last year sent experts into Kansas to conduct investigations. The results of the first season's work are given in detail in the bulletin, with suggestions for improvement that may be applied anywhere. "Altho but one season has been spent by the Bureau in this work," says the bulletin, "several much-desired changes have been brought about. The most important of these was the adoption by shippers of the 'loss-off' system of buying and selling eggs."

Previous to the work of the bureau, Kansas eggs were not very popular in the markets outside the State. Quantity rather than quality was a handicap the shippers encountered. The immediate effect of buying on a "less-off" system produced such a marked change in the quality of the eggs reaching the market that outside buyers now manifest a preference for eggs bought in this manner.

CLEAN THE POULTRY HOUSE

The necessity for thoroughly cleaning the poultry house at this season of the year, says The Farmer, of St. Paul, is obvious to all who give the subject much thought. During the summer the hot weather has quite likely added filth and disease germs to those which already existed and has assisted any lice and mites that were present to multiply their number rapidly.

The ceiling and walls should be thoroughly swept down to remove all dust, dirt and cobwebs, and all litter should be removed from the floors and nest material from the nest boxes. The wooden or cement floor should be scraped and sprinkled with lime. The dirt floor should have at least two inches of the surface removed unless this has been done, and fresh sand put on, earlier. The interior of the house and all equipment should then be sprayed with thin whitewash, forcing the liquid into all cracks and crevices.

A Fine Bunch of White Holland Turkeys

—at the—

Willobank Farm

Eastgate Bros. Larimore, N. D.

Harty's Barred and White Plymouth Rocks

**1st. PREMIUM
1911 State Fair**

Stock for Sale

A fine selection of early hatched chicks--trios, pens, or single birds.

**H. C. HARTY,
Omamee, North Dakota**



WE WILL GIVE YOU THIS RIFLE

Genuine Hamilton Take-down Hunting Rifle, 22 cal., long or short. Kills game at 100 yards. Automatic shell extractor. Set of targets. Given for selling 30 of our latest Jewelry Novelties at 10 cents each. Easy selling. We trust you. Send at once. Extra present. **THE WHITE CO., Box D, Melrose Highlands, Mass**

Home Department

BE NOT DECEIVED

Complaints have been received from settlers on Reclamation projects that by reason of the misrepresentations of land agents they have been induced to purchase lands which were afterward found to be without any rights to water from the Government canals. The Secretary of the Interior today issued the following warning which, while it refers particularly to the Rio Grande Project in New Mexico and Texas, is equally applicable to other projects containing large areas of private lands:

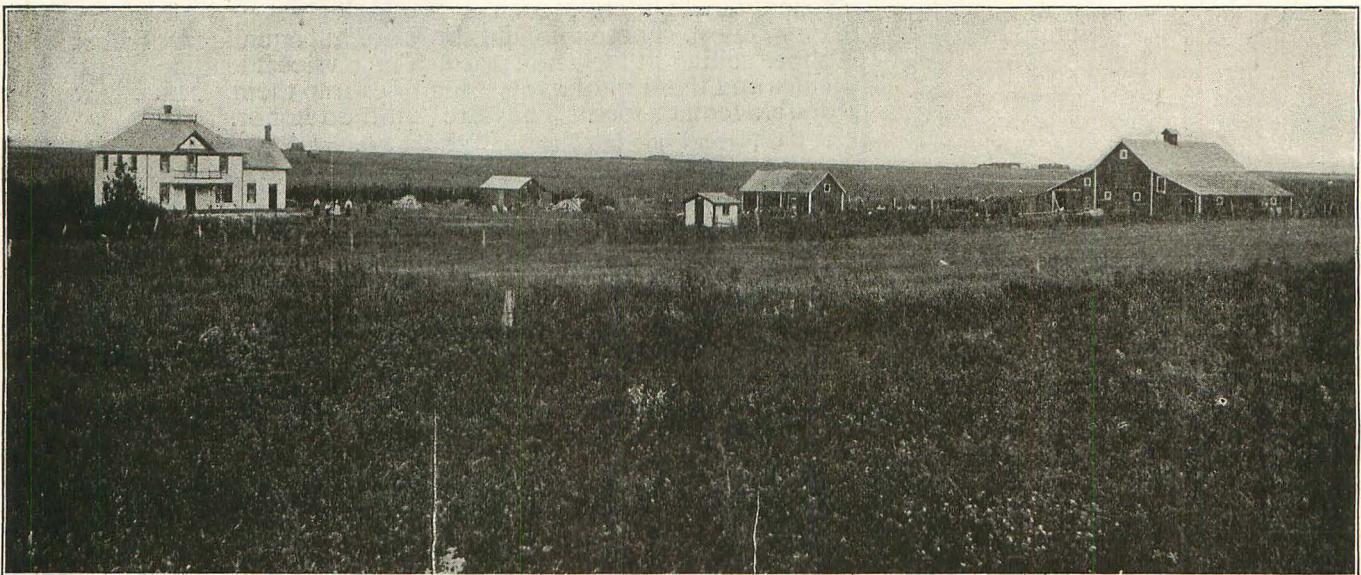
ship shall be sold for a tract exceeding 160 acres to any one landowner, and that no such sale shall be made to any landowner unless he be an actual bona fide resident on such land or occupant thereof, residing in the neighborhood of said land.

"It is also required that the landowner shall reclaim at least one-half of the total irrigable area of his land for agricultural purposes before any right to the use of water shall permanently attach. Ignorance of these and similar requirements has resulted in great embarrassment to purchasers.

"It is not known how many years will

jects to liability for water charges so much thereof as shall hereafter be furnished with water from the Government works, but it does not in any way bind the Government to furnish water to any particular tract. On the contrary, considerable areas have been thus designated in subscriptions to which, because of location, elevation, physical conditions, or other reasons, water can never be furnished. Prospective purchasers should not rely upon the statement that land is "signed up," but should carefully investigate and satisfy themselves that the tracts offered to them are in fact likely to be furnished with water under the project.

"While it is not possible to give definite assurance on many of these points, the persons interested are advised to read carefully the terms of the Reclamation Act or consult the publications such as "Questions and Answers" which have been prepared to explain some of the requirements of the law."



"All persons are warned against accepting any statements concerning this project, without inquiry from the officers of the Reclamation Service. Experience has shown that some warning of this kind is necessary because misleading statements have been issued regarding the project and the conditions existing upon it. The project has many advantages and would not have been taken up and pushed unless it was considered feasible and worthy of development. These facts, however, do not warrant certain exaggerated statements which have been made.

"In particular, attention is directed to the requirements of the Reclamation Act regarding residence and cultivation. The act prescribes that no right to the use of water for land in private owner-

be required for the construction of the storage dam, nor is it safe to make predictions as to when water will be available in view of the many uncertainties existing.

"Warning is also given that the amount of available water power has been grossly exaggerated in many current discussions. It is not definitely known that there will be any power available for sale, and there is no assurance that it will produce dividends reducing the cost of water rights.

"Purchasers are warned against being misled by the statement that certain tracts are "signed up" under the Government irrigation project. This "signing up" is the landowner's subscription to the water users' association. It designates tracts of land and sub-

SIGNPOSTING THE HIGHWAYS

With the present-day renewal of travel by road there is becoming more apparent the imperative need of a comprehensive system of sign-posting the highways. This work is occupying much of the attention of the Touring Information Board of the American Automobile Association, and as a result a large part of Chairman Longstretch's correspondence with the 300 clubs of the National organization has to do with this subject.

A. A. A. Clubs have spent substantial sums in marking the roads in their respective vicinities, and motorists generally have benefited by this now essential adjunct to aid the traveler who

covers not only his own state but goes beyond its confines whenever it strikes his fancy. Since such a large and growing class are now to be served in this manner the conviction has become fixed that the duty is one which devolves upon city, county and state authorities, with particular reference to state routes which serve as lines of inter-state communication.

Indicating the wide extent to which the A. A. A. is interesting itself in this matter were recent conferences involving its officers and state authorities in different parts of the country. At the request of State Highway Commissioner Bigelow the Pennsylvania Motor Federation is cooperating thru Secretary Paul C. Wolff in the application of the new highway law of that state in the securing of which the Federation took a prominent part--requiring the posting of all main roads, which work will be amplified by the marking of the tributary routes. In New Jersey recently the Associated Automobile Clubs was involved in an interview which State Road Commissioner Stevens called for. Secretary H. A. Bonnell pledged the aid of the state motorists in any plans decided upon by the Commissioner who keenly realizes that there are some things to do in order that New Jersey shall not lose her reputation for good roads. The seashore state has yet to adopt a form of maintenance which shall effectively cope with the multiplied use to which the highways are now being subjected. Furthermore, the problem has reached an acute stage, for it is a deplorable fact that the once satisfactory roads must be given more thorough and rugged attention to withstand present demands.

In New York State the State Automobile Association has just established offices at Albany, in charge of Secretary Ritchie, in order that there may be opportunity for frequent interchange of information between the State Highway department and the recognized spokesmen of the organized automobilists. Not only is the posting of roads appreciated as a duty of the moment, but the maintenance subject is being answered by a patrol plan modeled on the French plan of government upkeep.

On the Pacific Coast the Pacific Highway Association is engaged in posting the route southward from the Canadian border and practically all of Washington and a good part of Oregon have been marked in the progress to the California line. The annual convention of the Pacific body is to be held early in August with one of the most energetic

A. A. A. units acting as host of the occasion. President Clemens of the Portland Automobile Club has assured Judge J. T. Ronald of Seattle, President of the Pacific Highway Association, that Portland will provide for a gathering worthy of the cause.

The California Highway League, the president of which is P. J. Walker, the head of the California State Automobile

WANTED—GOOD HOUSEKEEPING MAGAZINE requires the services of a representative in this state to look after subscription renewals and to extend circulation by special methods which have proved unusually successful. Salary and commission. Previous experience desirable, but not essential. Whole time or spare time. Address, with references, J. F. Fairbanks, Good Housekeeping Magazine, 381 Fourth Ave., New York City.

BROTHER---Would like to correspond with all who wish to quit the Tobacco habit.

T. E. Stokes, - - - Mohawk, Florida.



Mayer

FOR MEN WOMEN AND CHILDREN

HONORBIT SHOES

Built on Honor

Mayer Honorbilt Shoes are leaders. They lead in style and are unexcelled in wearing qualities. The styles are the very latest. These splendid shoes are not equalled by other shoes selling at the same price. The choicest leather, tough soles and the best of everything goes into them. Made with double leather toes. They are "built on honor."

Look for the Trade Mark on the sole

Buy Mayer Honorbilt Shoes and get the greatest shoe values obtainable.

WARNING—Look for the Mayer name and Trade Mark on the sole—if your dealer cannot supply you, write to us.

We make Mayer Honorbilt Shoes for men, women and children, including "Leading Lady" and "Special Merit" brands; also Mayer "Yerma Cushion" and Mayer "Martha Washington Comfort Shoes."

FREE OFFER—Send the name of a dealer who does not handle Mayer Honorbilt Shoes—we will send free a handsome picture of George Washington—size 15x20.

F. MAYER BOOT & SHOE CO., MILWAUKEE, WIS.

MILWAUKEE
Mayer
CUSTOM MADE

Trade Mark

One Thousand Recipes

FOR NORTH DAKOTANS BY

One Hundred North Dakota Housewives

A North Dakota COOK BOOK

Why purchase a "White House" Cook Book for a North Dakota Home? These recipes have all been carefully and thoroly tested by North Dakotans and the sterner sex have pronounced them the "best ever" compiled for hungry mortals.

Price postpaid, 50 cents.

NORTH DAKOTA FARMER, Lisbon

Are you boosting the North Dakota Farmer? One year, 50 cents; three years, \$1.00.

Association, is demonstrating its value in the extensive roads building plans under way, particularly in the Northern part of the state. In the lower section the Automobile Club of Southern California, of which Frank L. Baker is the leader, is continuing work which has placed that body second to no other in the whole country for services performed to automobiling generally.

THE CABBAGE

The home gardener, the market gardener, and the truck farmer, each of whom contributes largely to the vegetable supply, is more or less interested in the growing of one of the most universally cultivated plants—the cabbage; and with its usual sensitiveness to the needs of its clientele the U. S. Department of Agriculture has recently issued a bulletin (Farmers' Bulletin No. 433) describing its cultivation under the different requirements of those three environments.

Altho one of the coarser vegetables cabbage finds a place in the home garden as well as in the market garden and the truck farm, and in some sections of the United States it is extensively grown as a farm crop. No adequate estimate, however, can be placed on the value of this crop, as it fluctuates very decidedly from year to year both in acreage and price; but the output is large—the three states of New York, Pennsylvania, and Virginia, which outrank all the others, grow commercially about 50,000 acres of this vegetable, either as a spring or autumn crop, in addition to the home-garden supply which was consumed at home.

Early cabbage is practically all consumed as a green vegetable; the late crop on the other hand, is handled as a fresh vegetable, as a storage crop, and for the manufacture of sauerkraut. Cabbage is always in demand, and, under present conditions, is always on the market either in the spring as the product of the southern farms, in the fall and early winter from the northern farm and market garden, or in the winter from the storage house where the surplus has been preserved for this demand.

A section of this bulletin is devoted to each of the three methods of producing the crop commercially—truck crop, market garden crop, and farm crop—and the influence of climate, extent of production, soil, fertilizer, seed, method of producing young plants, varieties, cultivation, enemies, harvesting, and marketing, is described and explained under each head, in accordance with the light and knowledge gained from experiments and experience.

3,300 MILES OF DRY FEET

Such a Line Would be Formed by Feet Protected by the Famous "Ball-Band" Footwear

Sixteen million rubber boots, arctics, overs and other articles of the famous "Ball-Band" Footwear, protect sixteen million feet in cold, muddy, snowy or slushy weather.

These sixteen million articles of "Ball-Band" Footwear, placed heel to toe, would make a continuous line of more than 3,300 miles—a dry walk from New York to San Francisco, with an additional line of a hundred miles or so along the coast.

Many of our readers are among the eight million wearers of "Ball-Band" Rubber and Woolen Footwear. They are familiar with its popularity, but few realize what an enormous volume of manufacture is necessary to meet the demand. Figures recently obtained from the factory are most interesting.

1,252 carloads of raw material, supplies, etc., are required to make one year's output of "Ball-Band" Footwear. This material if put into one continuous train, forming a hollow square, would enclose more than 3,600 acres with a solid wall of fully-loaded freight cars.

5,000,000 square yards of sheetings, cotton duck, cashmerette, wool linings, etc., were used in these goods—enough cloth to cover 1,033 acres completely.

One and a quarter billion yards of yarn was spun for knit boots, lumbermen's sox, etc.—almost enough to form three strands from the earth to the moon.

In 1910 "Ball-Band" dealers received 1,010 carloads of finished footwear, aggregating over \$10,500,000.



TRAPPERS GET READY BIG MONEY IN FURS

Over ten million dollars will be paid to trappers of fur bearing animals during the coming winter. Any man or boy living in the country can add a goodly sum to his earnings by trapping during spare moments. We furnish ABSOLUTELY FREE a complete Trapper's Guide which tells you the size of trap and kind of bait to use for the different animals, how to remove the skins and prepare them for market. We also furnish the best traps and baits at lowest prices. We receive more furs direct from trapping grounds than any other house in the world, therefore can pay the highest prices for them. Our price lists, shipping tags, etc., are also FREE for the asking. If you are a trapper or want to become one, write to us today. We will help you.

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GREATEST FUR HOUSE IN THE WORLD
365 Fur Exchange Building, St. Louis, Mo.

Are you boosting the North Dakota Farmer? One year, 50 cents; three years, \$1.00.

These shipments would make another train, solidly enclosing 2,500 acres.

That quality wins has been proved by the manufacturers of "Ball-Band," as these stupendous figures show. The company's policy is summed up in the declaration that "This company has not, nor will it ever cheapen the quality of its goods to meet competition."

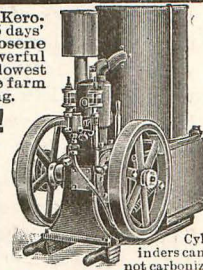
The Red Ball trademark has come to be the recognized symbol of quality in rubber boots, and other heavy rubber and woolen footwear. Forty-five thousand dealers in all parts of the country

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Amazing "DETROIT" Kerosene Engine shipped on 15 days' FREE Trial, proves kerosene cheapest, safest, most powerful fuel. If satisfied, pay lowest price ever given on reliable farm engine; if not, pay nothing.

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Automobile owners are burning up so much gasoline that the world's supply is running short. Gasoline is 9c to 15c higher than coal oil. Still going up. Two pints of coal oil do work of three pints gasoline. No waste, no evaporation, no explosion from coal oil.



Amazing "DETROIT"

The "DETROIT" is the only engine that handles coal oil successfully; uses alcohol, gasoline and benzine, too. Starts without cranking. Basic patent—only three moving parts—no cams—no sprockets—no gears—no valves—the utmost in simplicity, power and strength. Mounted on skids. All sizes, 2 to 20 h. p., in stock ready to ship. Complete engine tested just before crating. Comes all ready to run. Pumps, saws, threshers, churns, separates milk, grinds feed, shells corn, runs home electric-lighting plant. Prices (stripped), \$29.50 up. Sent any place on 15 days' Free Trial. Don't buy an engine till you investigate amazing, money-saving, power-saving "DETROIT." Thousands in use. Costs only postal to find out. If you are first in your neighborhood to write, we will allow you Special Extra-Low Introductory price. Write: Detroit Engine Works, 385 Bellevue Ave., Detroit, Mich.

HONEY Well ripened clover Honey for Sale, guaranteed absolutely pure and of the finest quality. One 30-lb. can 11½¢ per lb.; 2 or more cans 11¢; 12-lb. cans, in full cases of 72 lbs., 11½¢ per lb. Send for price list. Address

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sell "Ball-Band" goods. If any reader fails to find them he is invited to write the Mishawaka Woolen Mfg. Co., at

Michawaka, Indiana, mentioning his dealer's name and the company will see that he is supplied.

Elementary Agriculture

McNeal. C. James, Editor

Enemies of Useful Plants

(As last year, we shall devote this month's work to the material outlined for December, since the material will not be available at that time.)

One of the enemies to which the farmer of North Dakota must give increased attention, is that of injurious weeds. It is impossible for him to get a good crop both of weeds and grain from the same ground the same year. The writer has seen crops of wheat, oats, and flax this year where weeds cut the crop yields short fifty per cent of what they would doubtless have been had it not been for the weeds. This condition ought not to be.

Most of the weeds which are giving trouble in our state are foreigners. That is to say, their original home was not in this country. They have been brought from Europe, often in grain which was bought for seed. Some were brought into sections that were very dry, and where the soil was poor. This caused those weeds which grew to be very hardy. When they found their way to the fertile soils of the Northwest they, being sturdy, grew rapidly. Often when weather conditions are not good the regular crop grows slowly, but there hardy weeds are able to make a good growth and produce a good supply of seeds for the next year. This accounts for the power of the Russian cactus to make a vigorous growth when farm crops fail on account of drouth. Since weeds are so persistent, the farmer must use great care if he is to get ahead of them.

One of the methods he can use is that of a systematic rotation of crops. Certain weeds grow in crops like oats, wheat, barley, etc., which are not cultivated during their growing season. So when one of these crops follows like crop, the weeds have a good chance to do great injury. But if a cultivated crop such as corn or potatoes follows one of the crops mentioned above, these weeds are killed. It is sometimes well to sow a hay crop and let it stand on the ground for a few years; again a millet, corn, or other crop may be sown which can be put in late in the season. This allows of late cultivation which gives a chance of destroying many weeds. This crop can then be cut early, while yet green for hay, thus putting another check upon the weeds. The ground may then be stirred during early fall,

striking a third blow at the weeds. Again a crop of this sort sown for hay may be very thick, which tends to choke weeds out.

The old saw that "An ounce of prevention is worth a pound of cure" is nowhere else more true than in fighting weeds. The seeds of farm crops sown should always be free from noxious weeds. Much can be done in this regard by a careful selection of the grain for seed from parts of field free from weeds, and by a vigorous use of the fanning mill.

Another method of prevention of weeds in crops is that of keeping all waste places free from weeds. All cultivated crops should be well cleared of weeds.

Another class of enemies of farm crops is smuts and rusts. The life history of the stinking smut of wheat, and means of prevention were discussed last year. Loose smut, while not so injurious as stinking smut, is quite common. Loose smut, while not so injurious as stinking smut, is quite common. The smut balls mature about the time the majority of the wheat is in blossom. The dark spores of the smut are blown about by the wind and fall upon a wheat flower. They then grow threads in the young wheat kernels which are forming in the flower. Here the threads develop along with the kernel of wheat and remain there until it is mature without producing new spores. When the wheat germinates after being planted in the spring, the smut also begins to grow a new plant and continues to grow in the tissues of the stalk, until the wheat is about ready to bloom, when the smut forms spores in the head of the wheat. Barley is also injured by loose smut.

From this one can easily see that the treating of the seed in the same manner as for destroying stinking smut would do little good as the smut is on the inside of the wheat kernel in the spring of the year. A modified hot water treatment is recommended by our Experiment Station. This is too difficult for the treatment of large quantities of grain, but small plots might be sown with grain thus treated. The wheat is to be soaked from five to seven hours in cold water, then ten minutes in hot water at a temperature of 129½°F.

During the early part of August, the writer, while taking a walk came upon a

potato field. As he approached the field the rows appeared to be not more than ten rods long, but upon closer examination they proved to be eighty rods long, the potato vines of the entire field having been stripped of their leaves up to within ten rods of the end of the field. The thieves which had all but destroyed the patch were still hard at their meal. More than one hundred twenty-five of them were found upon one hill of potatoes. What were they? They were a somewhat oval-backed beetle, with brown and greyish-brown stripes on wings. In other words they were the Colorado potato beetle. These beetles destroy potatoes to the amount of thousands of dollars in this state each year. When the first settlers made their way to Colorado they found this insect living upon a weed. But when the common potato was planted this beetle for some reason changed his diet, and ever since has lived upon the potato. In less than fifteen years this insect has traveled to the Atlantic Ocean and then to Canada. It has gone from patch to patch, until today it is found in most parts of our country.

Its life history is something as follows: The old beetle lives in the ground over winter. As soon as the potatoes are up it crawls out and begins to eat and lay eggs. These eggs are yellow in color and are deposited on the under side of the leaf. In about a week they hatch into grub-like larvae. They begin eating immediately and in about three weeks become full grown. They then crawl into the ground and go into the pupa stage, where they stay for about ten days when they emerge into full-grown beetles. Each old beetle lays from 500 to 1000 eggs in a season, and there are from three or four broods in a season. So one can see how important it is to destroy the old ones as soon as possible.

The Colorado beetle can be killed by spraying the vines with Paris Green as soon as the first ones appear upon the vines. The work can be done with either a hand sprinkler or a garden sprayer.

References

Plant diseases. N. D. Bulletin 87; Bureau of Entomology. Circ. 87.

BEES HOW TO MAKE THEM PAY
The pleasures, the work and the profits of bee keeping are fully covered in "Gleanings in Bee Culture," 6 months trial subscription 25 cents. Write for book on Bees and free catalog—both free.
THE A. I. ROOT COMPANY, Box 78, Medina, Ohio

Are you boosting the North Dakota Farmer? One year, 50 cents; three years, \$1.00.

BUMBLE BEES AND CLOVER

It has long been a question whether bumble bees are necessary to the production of clover seed. To throw some light on this matter Supt. L. R. Waldron of the Dickinson Sub-Station made the following experiment which he gives in his third annual report. A number of clover plants were covered with wire screen to keep away insects. Then he put bumble bees under some of the screens, butterflies and moths under others, and some of the plants had no insects with them. The result was that the blossoms of the plants that had the bumble bees with them produced 46 per cent of seed; where the moths and butterflies were but 2½ per cent of the blossoms produced seed; where there were neither bees nor butterflies 9 per cent of the blossoms produced seed. In the open field where all kinds of insects could get to the blossoms 54 per cent of them produced seed. This would seem to indicate that the bumble bees had a good deal to do with the production of clover seed.

LONGFELLOW TO DATE

"Tell me not in broken measures
Modern farming does not pay,
For a farm produces chickens,
And the hens—do they not lay?

"Eggs are high and going higher,
And the price is soaring fast,
Every time we go to market
It is higher than the last.

Not a crop but it produces,
Every day an egg or two,
For the farmer gains his millions,
Even tho his hens be few.

Every egg is very precious,
And the hens are held in awe
When a hen begins to cackle,
Then the farmer goes, 'Haw, Haw'.

"In the broad and busy farmyard
Struts a rooster now and then,
But the shrewd bewiskered farmer
Only notices the hen.

"Trust no rooster howe'er showy
Be the feathers in his tail;
Pay attention to the biddies,
And your wealth will never fail.

"Lives of farmers all remind us
We may roll in wealth some day
If we hustle to the market
With the eggs our pullets lay."

Seasonable Receipts

Smothered Chicken (A Southern Dish)

Split half-grown chickens down the back and arrange them in a baking-pan with a cup of water and a little salt. Cover and cook until tender, then remove, cover, dredge with flour and allow to brown, basting often with a mixture of one-half cupful melted butter, one tablespoonful vinegar and pepper to taste.

Carve and arrange on the platter, then pour over it the gravy in the pan.

Cheese

We are told that there is twice as much nutriment in a pound of cheese as there is in a pound of the best meat and also that if eaten at the right time and with the right food it is easily digested by the average person. As it is rich in proteids it is a good substitute for meat. Here is one way to serve it: Arrange in a baking-dish alternate layers of either thin slices of tale bread or dry bread crumbs and grated or thinly sliced cheese. Season with salt and pepper

and pour over it a mixture of egg and milk in the proportion of two eggs and one cup of milk to the equivalent of two-thirds of a five-cent baker's loaf. Bake about thirty minutes or until the cheese is soft.

Tasty sandwiches are made by using a filling of cheese mixed with either minced cucumber pickles or chopped walnuts. Moisten with a little salad dressing or sweet cream.

Nut Cake

One cupful of butter, two cupfuls of white sugar, four cupfuls of flour, one cupful of sweet milk, whites of five eggs, 3 teaspoonfuls of baking powder and two cupfuls of walnut meats.

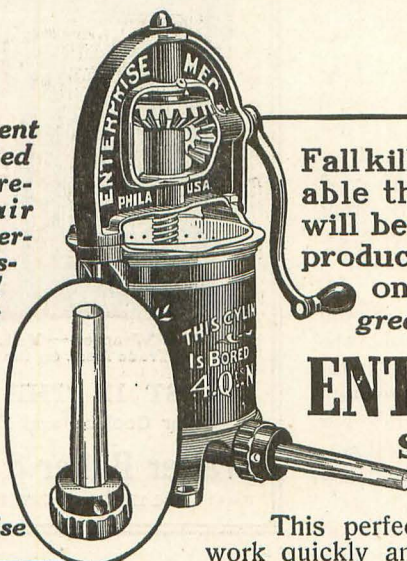
Caramel Nut Filling

Two cupfuls brown sugar, two-thirds cupful thin cream. Boil till it will ball in water, then add two-thirds cupful chopped nut meats and stir until thick.

Coffee Cake

One cupful of coffee, one of sugar, one of molasses, one of butter, one teaspoonful of soda, three cupfuls of flour, one egg.

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corrugated
spout pre-
vents air
from enter-
ing cas-
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One of
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Fall killing will be profit-
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**Sausage Stuffer
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This perfect machine does the work quickly and easily, saving time and labor. It makes sausage that *keeps*—air cannot enter the casing to start fermentation. When used as a press, the lard cannot ooze over the top, as in inferior machines. The one perfect machine of its class. Like all that bear the name Enterprise—built on honor, to last.

\$5.50 for 4-quart size at hardware and general stores. To be sure of satisfaction, *be sure* you see the name Enterprise.

Enterprise Meat and Food Chopper. The chopper that really *cuts*. Does not *shred*. Four-bladed steel knives revolve against perforated steel plates.

Enterprise Bone, Shell and Corn Mill—an invaluable part of the equipment of every poultry owner. Enterprise Fruit and Wine Presses—Raisin Seeders—Sad Irons—Coffee Mills, etc., each best of its class.

Send 4 cents in stamps for our recipe book, "The Enterprising Housekeeper." Tells how to make 200 economical, tasty dishes.

ENTERPRISE MFG. CO. of PA., Dept. 32, Philadelphia, Pa.

Corn Fritters

One can of corn. Stir in it gradually 2 tablespoonfuls of flour and 3 eggs, beaten very lightly, salt and pepper to taste. Mix all well together. Allow one tablespoonful for each fritter and fry in boiling lard and send to the table hot.

Ginger Cakes (Fine)

One cupful of molasses, one cupful of sugar, one cupful of butter or part lard, one-half cupful of hot water, two eggs, one tablespoonful each of cinnamon, ginger and soda, salt to suit the taste, flour to make a stiff dough. Bake in large tins without cutting, and when baked frost them with a boiled frosting and cut into squares. Do not roll too thin.

Breakfast Meat Cakes

Two cupfuls any kind of meat, chopped fine, one cupful bread crumbs, one cupful milk, three eggs, season high with salt, pepper and butter. Stir in a little flour, drop in spoonfuls and fry brown.

Flowers for Winter

Too few people know the pleasure derived from a few flowering bulbs.

The bulbs of the hyacinth, crocus, narcissus, and jonquils are sold at a very reasonable price by all florists and seed houses. October or early November is the time to plant them and when that is done almost all the work connected with them is over.

If you have a place for a window box, a pretty arrangement is to plant several varieties of bulbs together. If not use small pots or boxes. The hyacinth looks best when only one good bulb is planted in a pot, but the other smaller bulbs are more effective when from three to five bulbs are planted in one box or pot.

Whatever the receptacle, it should have good garden soil, to about the depth of four inches. Plant the bulbs so that the tops are just barely covered, water well and place in a cool dark cellar for about six weeks. This is to allow a good growth of roots. They may then be brought up into a moderately warm and light room, when the leaves will begin to grow and you will soon be enjoying their beautiful color when all outside is cold and drear.

It is not necessary to bring all up at once but you may have a succession of bloom by bringing up only a few at a time. If they are planted in large boxes, they may be transplanted into small pots and make delightful gifts.

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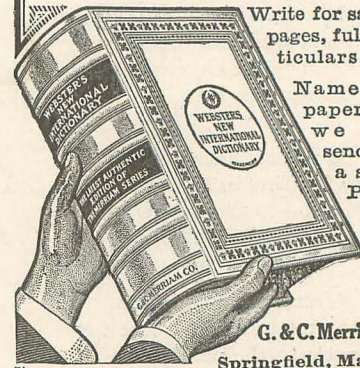
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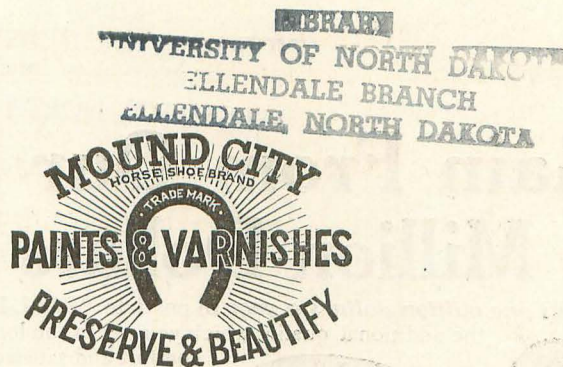
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WHY do you see so many dull,
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The trouble with such houses is that they are Oil-hungry. They are painted with a paint that has not enough Linseed Oil in it—a paint that never *could* have enough Oil in it on account of the character of the pigments used.

The best Paint *must* do two things. It must preserve and beautify. Do you know that Linseed Oil is *the* great preservative in Paint and that if it were not for the sake of appearance, you could give your house a coat of pure Linseed Oil, and it would be protected?

The solid part of Paint (Strictly Pure White Lead, Strictly Pure Zinc, and, in some Paints, baser metals) acts as beautifier only.

Strictly Pure Zinc absorbs more Oil than any other pigment and that is the reason for its use in Horse Shoe Paint. WHITE LEAD is used for its covering qualities, and ZINC for its *Oil-carrying* capacity.

And Oil-carrying capacity is what your Paint *must have* if your property is to be protected.

Horse Shoe Paint, while it covers and beautifies the surface thoroughly, is made of pigments that carry so much oil, that the *first* coat satisfies the oil-hunger of the wood leaving the second coat to gloss, harden, protect, and beautify.

That's why Mound City Horse Shoe Brand House Paint **HOLDS** its gloss.

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Your Gain From Our Sacrifice of a Million Dollars Profit

It costs us one million dollars a year to put into "BALL-BAND" Rubber Footwear the additional quality which you get in the longest wear and the utmost comfort and satisfaction.



TO supply the demands of more than eight million people who wear "BALL-BAND" Rubber and Woolen Footwear, required in 1910:

1,252 carloads of raw material, supplies, etc. This material, if put into one continuous train, forming a hollow square, would enclose more than 3,600 acres with a solid wall of fully loaded freight cars.

In 1910 we shipped to "BALL-BAND" dealers 1,030 carloads of finished footwear aggregating over \$10,500,000 in value. The shipments would make a train similar to the above, solidly enclosing 2,500 acres.

Placed toe to heel in a straight line, the footwear would make a dry walk of over 3,500 miles, or from New York to San Francisco, with a long stroll down the coast in addition.

It required 5,000,000 square yards of sheetings, cotton duck, cashmerette, wool linings, etc., to make these goods—enough cloth to cover 1,033 acres completely.

We spun one and a quarter billion yards of yarn for knit boots, lumbermen's Sox, etc.—almost enough to form three strands from the earth to the moon.

We could withhold this million dollars of value—add it to our profits—and purchasers would not know the difference until the goods began to wear out.

For rubber footwear in the store looks pretty much alike. Only an expert can tell the real quality.

So when you buy rubber footwear you have to take it on its record of wear, and faith in the manufacturer. That is just what more than eight million wearers of "BALL-BAND" do.

Many of these millions have worn "BALL-BAND" for years. It is to these that we refer you. Doubtless your friends and neighbors are among them.

Let them tell you how much it pays to insist on the footwear with the RED BALL trade-mark. You find this trade-mark on every article of "BALL-BAND" footwear. Be careful to look for it.

The business of the Mishawaka Woolen Manufacturing Company originated in the manufacture of All-Knit Wool Boots and Socks, which the Company continues. As the business grew, the Company could neither obtain the quantity nor the quality of rubber goods which had to be supplied with its woolen footwear.

The company therefore went into the manufacture of its own rubber footwear.

There was large competition then, as there is now.

We realized that to succeed with rubber footwear we must make our product a little bit better than the best rubber footwear on the market—and keep on making it better.

In all the years this company has not, nor will it ever cheapen the quality of its goods to meet competition.

This is the explanation of the widespread confidence in "BALL-BAND."

This is why it is worth your while to look for the RED BALL sign when you go to buy rubber footwear.

The extra quality that our sacrifice of a million dollars pays for has created a demand for more than ten million dollars' worth of "BALL-BAND" Rubber and Woolen Footwear every year.

Forty-five thousand dealers in all parts of the country sell "BALL-BAND" goods.

Many of these dealers display these signs in their windows or store fronts for your guidance.

Whether you see the sign or not, you are sure to find the RED BALL trade-mark on all "BALL-BAND" goods.

If your dealer can not supply you, write us, mentioning his name, and we'll see that you are fitted.

(58)

MISHAWAKA WOOLEN MFG. CO., Mishawaka, Ind.

"The House That Pays Millions for Quality"